

## **Exchange 2003 – Cluster Server Diagnostics**

Written by Marc Grote - <mailto:grotem@it-training-grote.de>

### **Abstract**

In this article I will give you some information how to use the Cluster Server Diagnostics utility – ClusDiag to determine the health of your Windows / Exchange Server cluster. Now you will ask yourself: What has Clusdiag to do with Exchange? The answer is simple: Directly nothing but if you can ensure that your Windows Cluster is running fine, you will also have more fun with your Exchange installation on the Cluster.

### **What is ClusDiag?**

Clusdiag is a graphical Cluster Diagnostics and Verification Tool. ClusDiag is a tool that performs some analysis on your Windows Cluster. Clusdiag can be used to analyze an online cluster or based on a Cluster logfile. Clusdiag can capture all eventlog entries and cluster logfiles from each node of a cluster. All collected information will be merged into a single logfile and be displayed by Clusdiag for more human reading. You can use Clusdiag's built in filtering capabilities to find information more quickly. One of my favourites is the capability of Clusdiag to display a graphical report from the network and disk configuration.

### **Supported version to install ClusDiag:**

- Windows 2000 Professional
- Windows 2000 Server
- Windows 2000 Advanced Server
- Windows 2000 Datacenter Server
- Windows XP Professional
- Windows Server 2003, Web Edition
- Windows Server 2003, Standard Edition
- Windows Server 2003, Enterprise Edition
- Windows Server 2003, Datacenter Edition

### **You can use ClusDiag to diagnostics clusters on the following platforms:**

- Windows 2000 Advanced Server
- Windows 2000 Datacenter Server
- Windows Server 2003, Enterprise Edition
- Windows Server 2003, Datacenter Edition

### **Download and installation**

You can download Clusdiag [here](#). After downloading Clusdiag simply install the tool by answering some standard installation questions.

## Using Clusdiag

For this article I use a two node Windows Server 2003 Cluster with two nodes, installed with Exchange Server 2003 SP1.

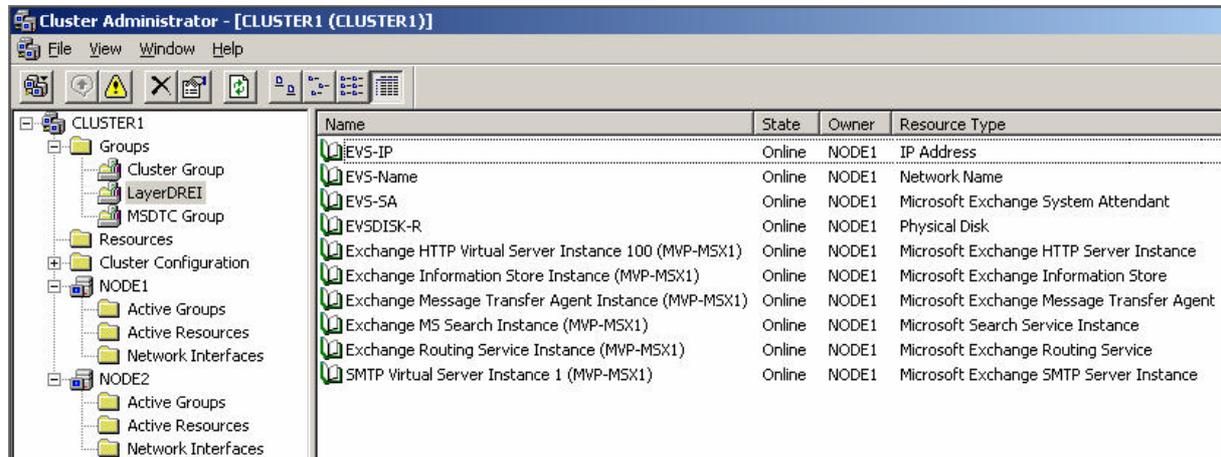


Figure 1: Two Node Windows Server 2003 Cluster with Exchange Server 2003

### Clusdiag uses two Modes:

- Online Modus
- Offline Modus

#### Online Modus

In Online mode ClusDiag can be run to verify that the cluster is set up correctly. ClusDiag moves resources to make sure that different members of the cluster can take over in the event of a member failure. This test should be run after a cluster is set up, but BEFORE it is put into production. Running the Clusdiag test on a production cluster may bring the cluster down

#### Offline Modus

Clusdiag in Offline Mode is designed to troubleshoot a failed cluster. Offline mode provides a variety of ways to view and synchronize logfiles, to generate cluster reports, and to examine the cluster disk and network topology.

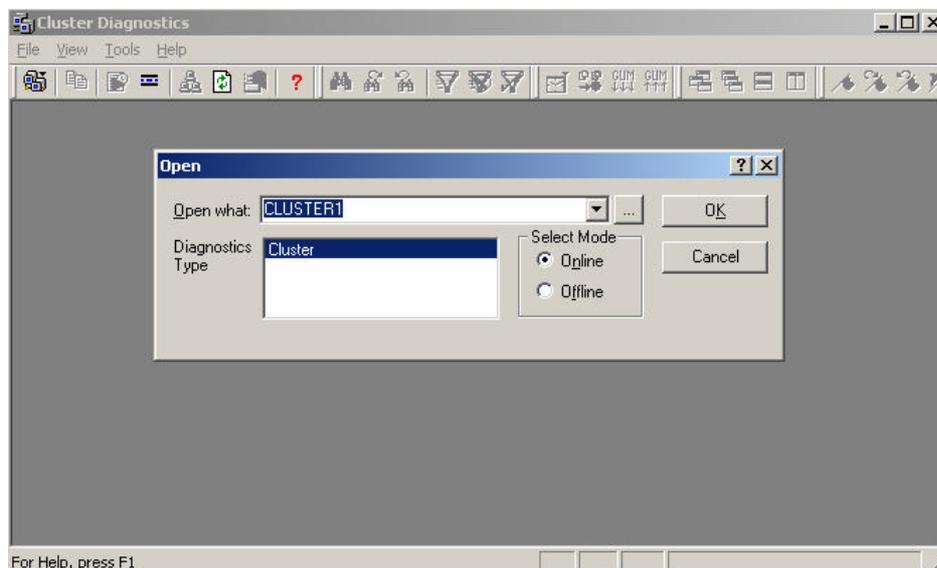


Figure 2: Online or Offline Mode from Clusdiag

After Connecting online to the cluster you can start Clusdiags discovery process.

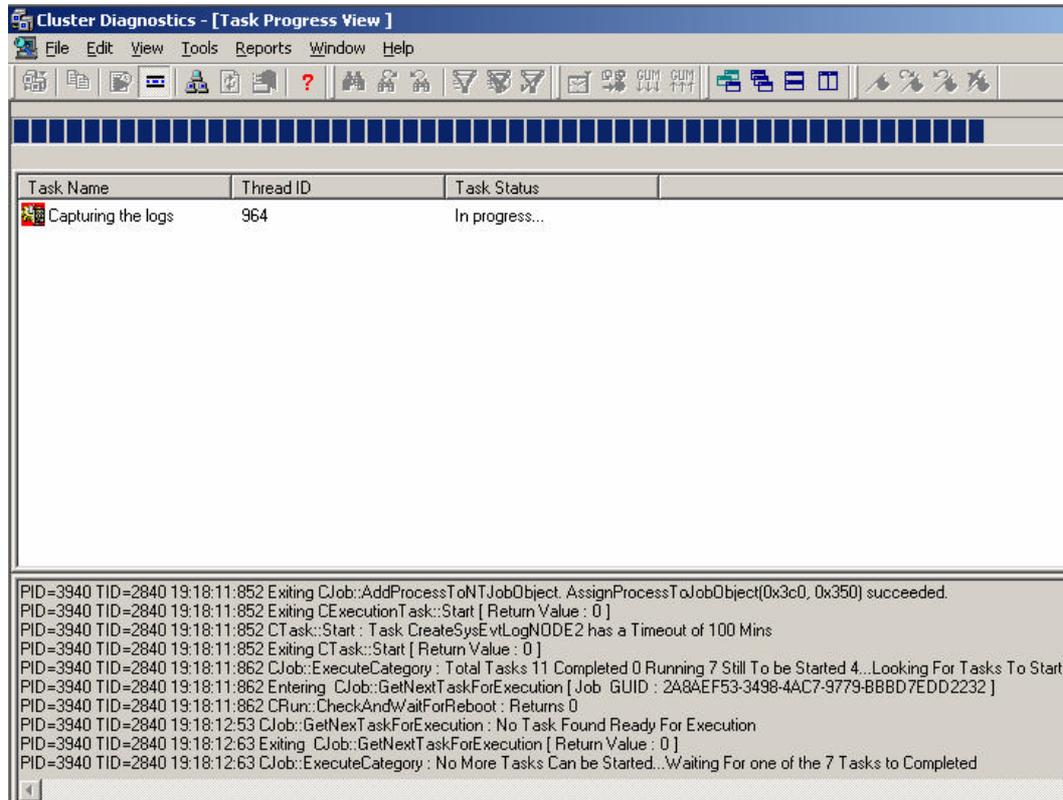


Figure 3: Clusdiag captures logfile

Clusdiag contains a link to the Microsoft Windows Server 2003 Cluster [website](#) where you can find much Cluster information.

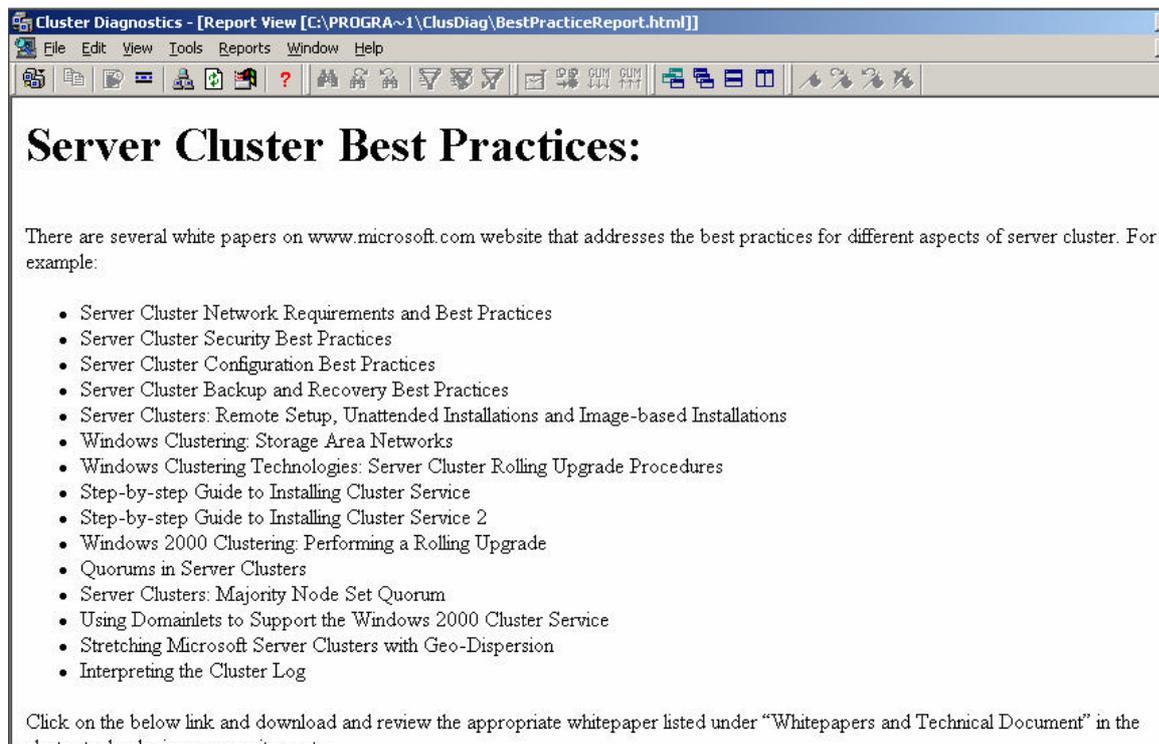


Figure 4: Link to the Windows Server 2003 Cluster website

One of the great benefits of ClusDiag is the graphical presentation of the Cluster Resource Dependencies. With the help of this nice function you can see the dependencies from each created resource. As you can see in Figure 5 the following components depends on the EVS-SA (System Attendant) resource:

- SMTP Virtual Server
- Exchange Information Store
- Exchange Message Transfer Agent
- Exchange Routing Service
- Exchange Search

As an experienced Exchange Cluster Administrator you can see that here are some changes to Windows Server 2000 / Exchange 2000 clusters.

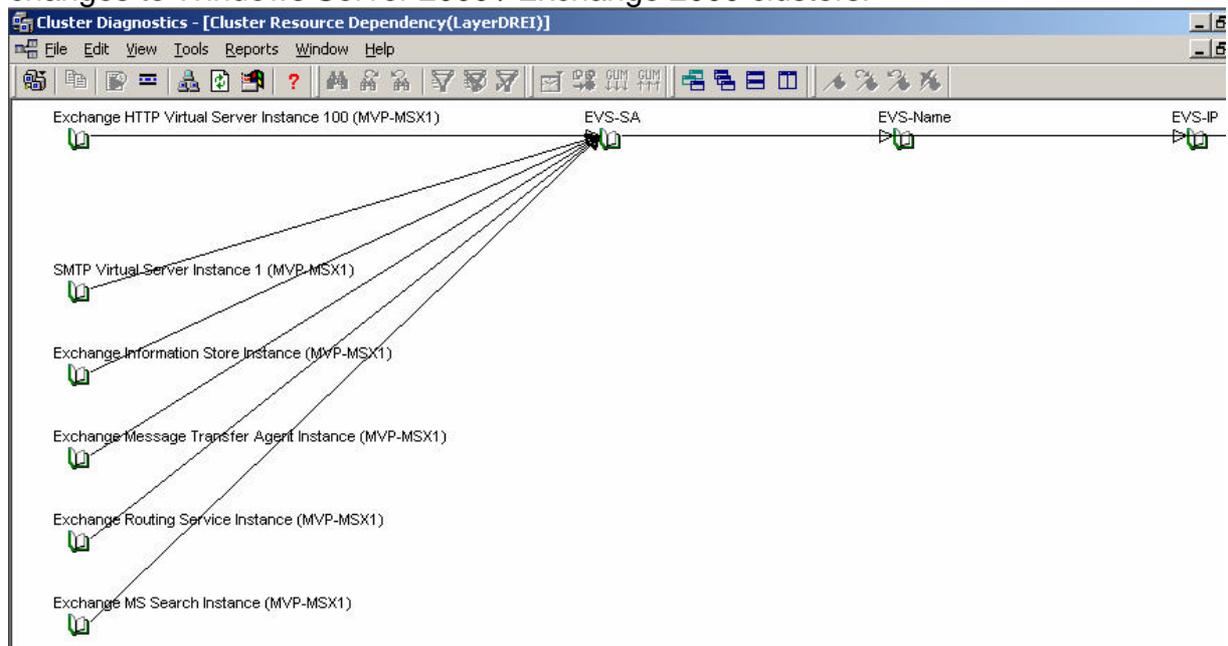


Figure 5: Graphical view of Cluster Resource Dependencies

ClusDiag creates several logfiles in the Clusdiag installation directory. For every node in the cluster it creates a logfile called *Nodename\_cluster.log* which contains very useful information about every cluster nodes.

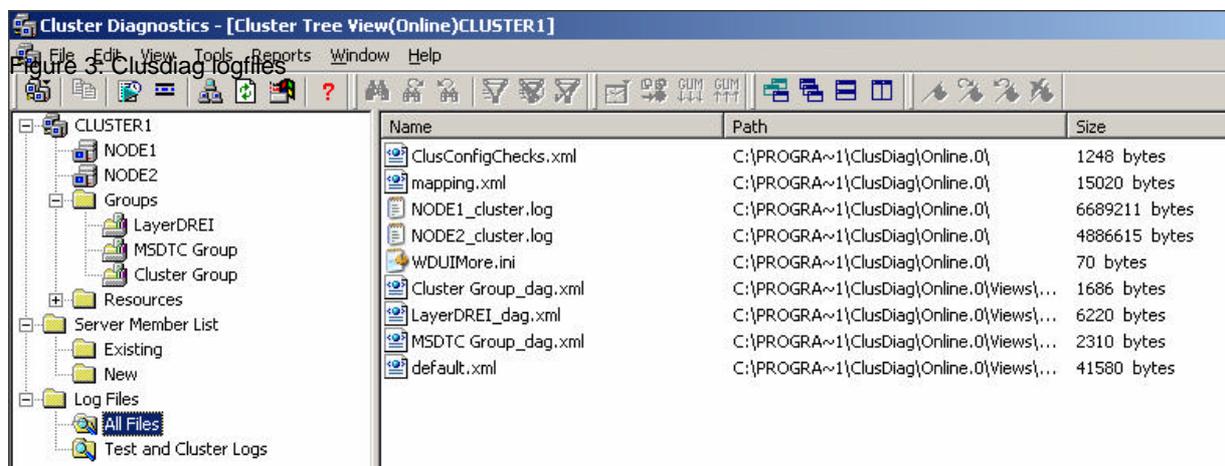


Figure 6: ClusDiag logfiles

If you want to run a test in Clusdiag's Online Mode, it requires that the following files are installed on the target node:

EXE files:

- wddump.exe
- spsrv.exe
- spsrvcl.exe
- spfail.exe

DLL files:

- clusdiagdll.dll
- netsniffDll.dll
- ntlog.dll
- wttcore.dll

These files are automatically installed when you click *Run Test* or *Capture Logs (Full capture)*. It is possible to install the files manually if you click *Tools* in the menu.

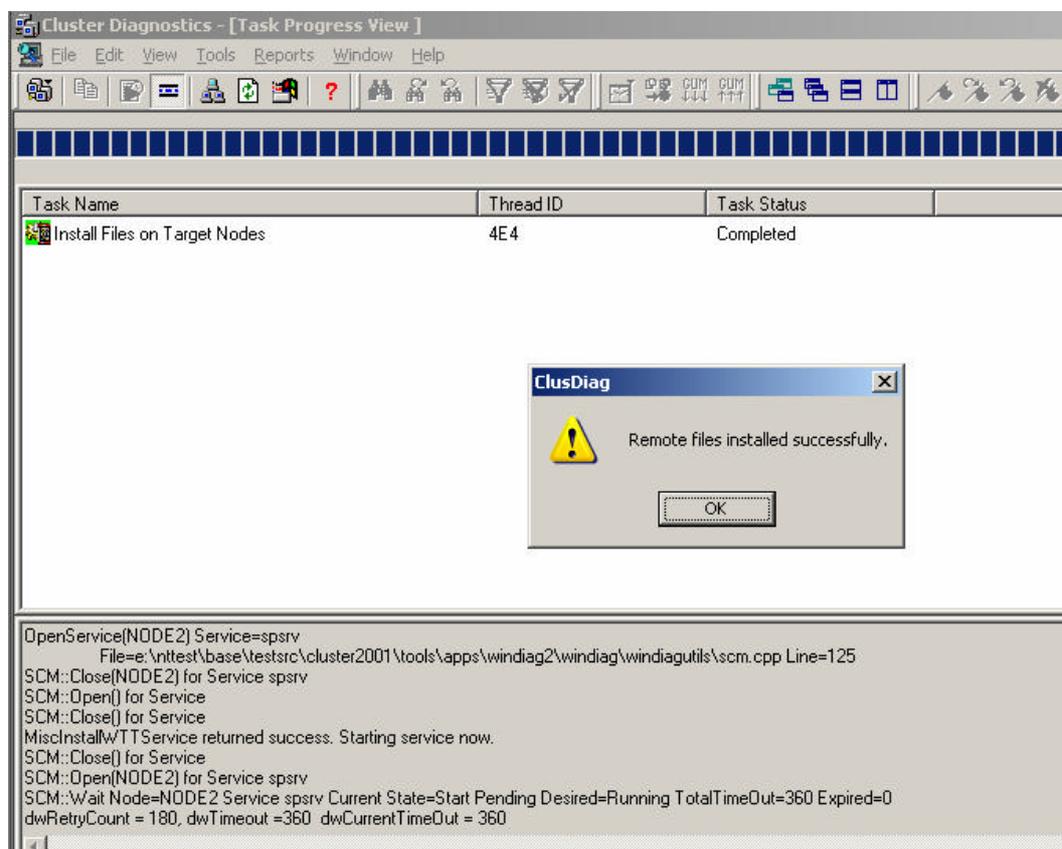


Figure 7: Install Remote Files

If you want to have a graphical trace of the clusters network configuration, click *Reports – Network statistics*.

MACHINE	NODE1
NAME	Intel 21140-Based PCI Fast Ethernet Adapter (Generic) #2
IPADDRESS	10.0.0.11
DHCP_SERVER	255.255.255.255
PRIMARY_WINS_SERVER	0.0.0.0
SECONDARY_WINS_SERVER	0.0.0.0
ADAPTER_TYPE	6
OPERATIONAL_STATUS	OPERATIONAL
ADMINISTRATIVE_STATUS	1
SUBNET_MASK	255.255.255.0
NETWORK_ID	10.0.0.0
PING_STATUS	NODE1(0)
MACHINE	NODE1
NAME	Intel 21140-Based PCI Fast Ethernet Adapter (Generic)
IPADDRESS	192.168.2.222
DHCP_SERVER	255.255.255.255
PRIMARY_WINS_SERVER	0.0.0.0
SECONDARY_WINS_SERVER	0.0.0.0

Figure 8: Graphical view of the Network configuration

For a graphical view of the disk on your Cluster click *Reports – Disk statistics*.

### Disk Statistics Report

MACHINE	NODE1
PATH	S:\
TYPE	Unknown
SIGNATURE	0xb64405b7
TARGETID	0
LUN	3
PORTNUMBER	2
DETAILS	Disk Number : 3, Signature : 0xb64405b7, Port Number : 2, Lun : 3, Bytes Per Sector : 0, Cylinders : 0, Disk Size : 0, Sectors Per Track : 0, Tracks Per Cylinder:0 Media Type : Unknown --- Disk Volume 1 --- Partition Number : 1 Member Number : 0 Path : S:\ Target : \Device\HarddiskVolume4
BUSTYPE	Unknown
VENDOR	SBS
REVISION	2.00
PRODUCTID	WinTarget Disk
SERIALNUMBER	A2A911D8-2245-81FB-3030-50545050CBAE

Figure 9: Graphical view of Disk statistics

## Conclusion

ClusDiag is the first tool to examine the status of your Windows Server 2003 cluster. If you know that your Windows Cluster is healthy, you have a stable basis for your Exchange Cluster installation. This article has shown only a few capabilities of ClusDiag. I recommend that you study the Clusdiag helpfile for more information. Keep in mind using Clusdiag in Online mode only after Cluster installation or in test environments.

## Related Links

High Availability Guide for Exchange Server 2003

<http://www.microsoft.com/technet/prodtechnol/exchange/2003/library/highavailgde.mspx>

ClusDiag Download page

<http://www.microsoft.com/downloads/details.aspx?familyid=b898f587-88c3-4602-84de-b9bc63f02825&displaylang=en>

Cluster Server Recovery Utility (ClusterRecovery.exe)

<http://www.microsoft.com/downloads/details.aspx?familyid=2BE7EBF0-A408-4232-9353-64AAFD65306D&displaylang=en>