

PoINT Jukebox Manager

Deployment in a Windows Cluster Configuration

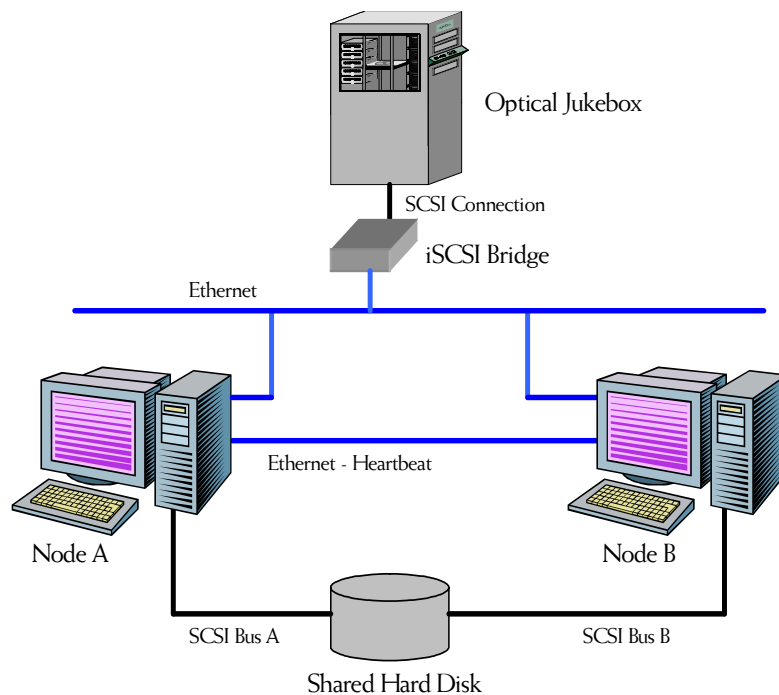
This document describes the requirements, configuration and restrictions of PoINT Jukebox Manager in a Microsoft Windows cluster configuration. It is intended for system administrators who want to setup and operate PoINT Jukebox Manager in such a configuration.

Functionality

PoINT Jukebox Manager can be installed in a Windows cluster configuration and supports automatic failover of the jukebox file system in case of a failure of one cluster node. This applies to writing operations to Single Volumes and Volume Sets with or without enabled Write Cache. Also Dynamic Image Recording and Mirroring is supported in a cluster environment. In case of a failover from one node to another the new node will take over the PoINT Jukebox Manager services and after a possible necessary media recovery (e.g. in case of interrupted recording access) the file system will be operable again automatically. Of course automatic failover and recovery require that the jukebox and the configured drives in the jukebox are still operable in case of a failure of one node.

Hardware Configuration

According to the Microsoft documentation multiple cluster configurations are possible in principle. The following figure shows a typical and recommended configuration which have been tested. The optical jukebox is connected via iSCSI Bridge (tested: ATTO iPBridge 1550D) to both cluster nodes. The heartbeat connection is realized through a separate Ethernet connection.



Software Requirements

- Microsoft Windows Server 2003 Enterprise Edition or Windows Server 2003 Datacenter Edition installed on all computers of the cluster.
Tested version: Windows 2003 Enterprise Edition / Service Pack 1
- PoINT Jukebox Manager - Version 5.0 / Service Pack 1 including Remote Connectivity option

Hardware Requirement

- Microsoft Windows Server 2003 Enterprise Edition or Datacenter Edition requirements for cluster configuration. Microsoft provides a detailed hardware requirement description in the "Guide to Creating and Configuring a Server Cluster under Windows Server 2003" This White paper is available in the Microsoft Windows Server TechCenter.
Refer to: <http://technet2.microsoft.com/windowsserver/en/default.aspx>.
- PoINT Jukebox Manager hardware requirements as described in the manual and in the README file.

Software Installation and Configuration

The Microsoft White Paper "Guide to Creating and Configuring a Server Cluster under Windows Server 2003" provides a detailed and 'step-by-step' description regarding installation, configuration and testing of a cluster configuration.

This White paper is available in the Microsoft Windows Server TechCenter.

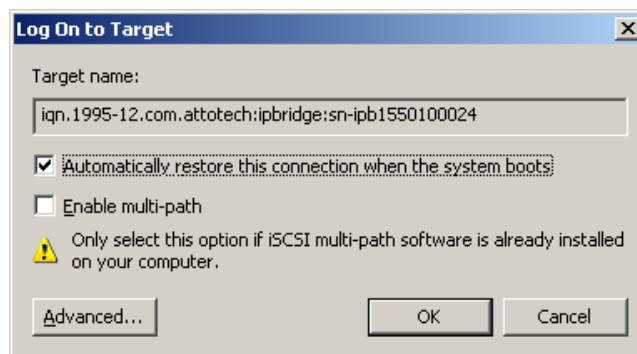
Refer to: <http://technet2.microsoft.com/windowsserver/en/default.aspx>.

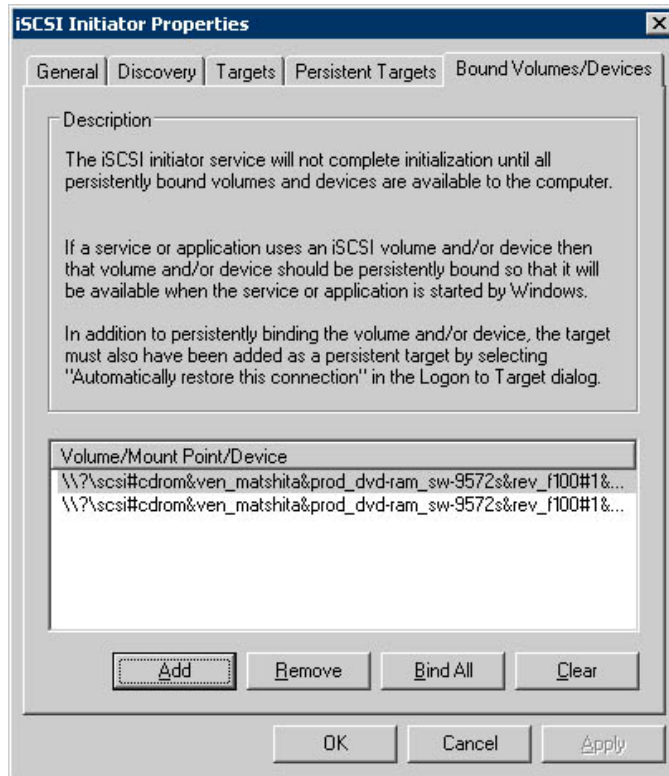
1. Start installation and configuration with Node A. Node B should be switched off during configuration of Node A. The Jukebox must be connected and switched on via iSCSI bridge.
2. Configure the iSCSI bridge SCSI/LUN mapping. (Check iSCSI bridge documentation.)

iSCSI Initiator Installation

3. If the optical jukebox is connected through a iSCSI bridge install the Microsoft iSCSI Initiator (tested version: Microsoft iSCSI Software Initiator version 2.01)

Select the option "Automatically restore this connectin when the system boots" in the "Log on to Target" dialog to enable automatic failover in the cluster environment:

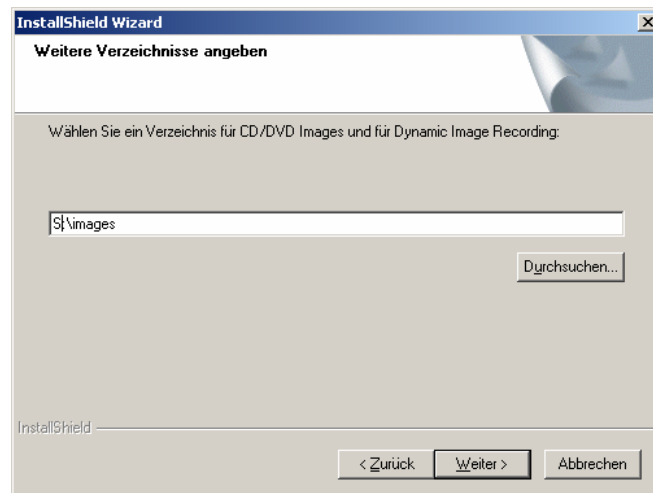
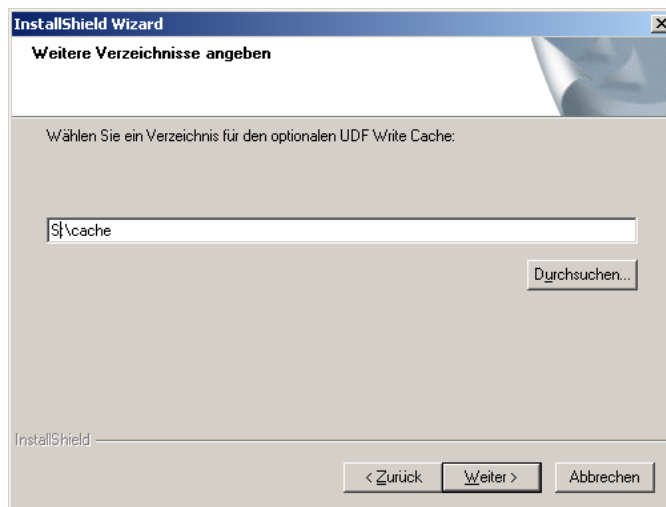
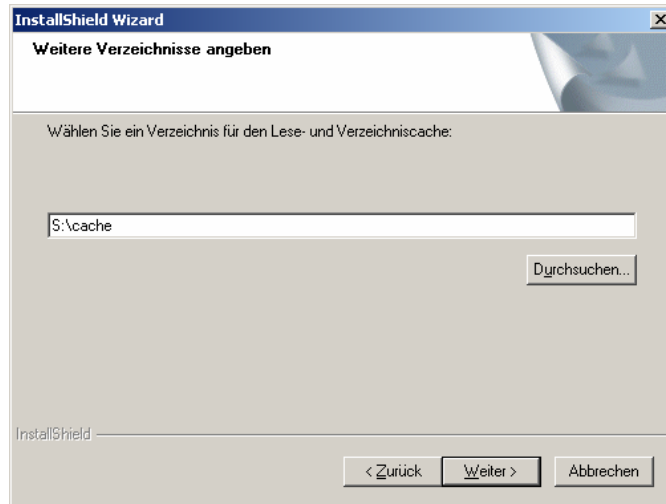




Installation of PoINT Jukebox Manager

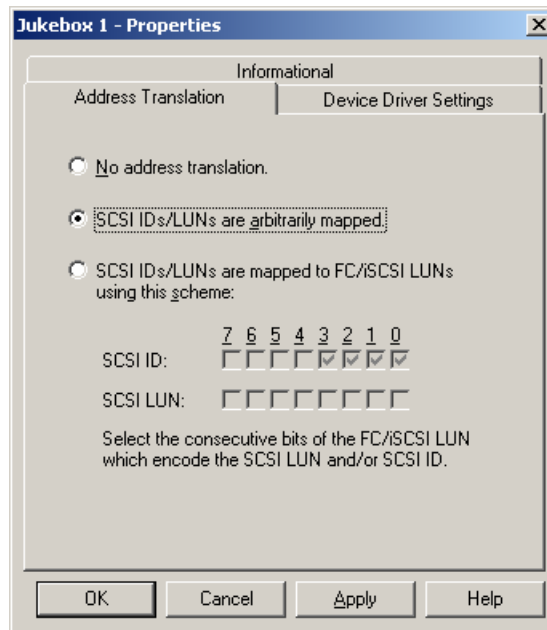
4. Install PoINT Jukebox Manager on Node A on the Shared Hard Disk and select directories on the Shared Hard Disk also for the Read/Directory Cache, for UDF Write Cache and for the Images. In this example drive letter "S" will be configured later as shared hard disk.



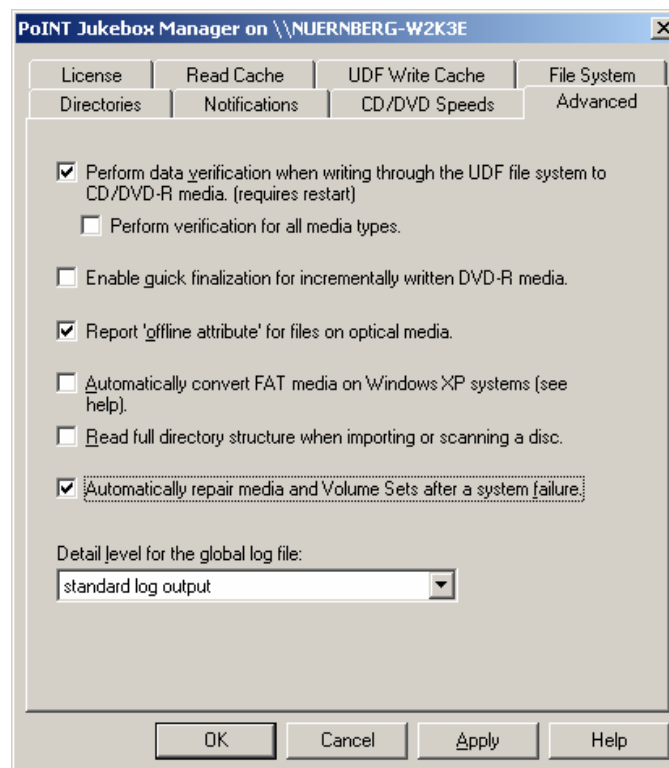


5. Enter the License Key for PoINT Jukebox Manager. Ensure that the Remote Connectivity Option is enabled.
6. Change the "PoINT ECR Service" startup type to "disabled".

- In the properties dialog of the jukebox select the "SCSI IDs/LUNs are arbitrary mapped" option in the Address Translation dialog. (Please note that for other iSCSI bridges than the tested ATTO iPBridge 1550D a mapping scheme, 3rd option, has to be selected and specified.)



- Assign the jukebox drives by selecting the 'Drives Folder' beneath the jukebox item and execute the 'Assign...' command from the context menu. This command pops up a dialog box with a list of all available devices. Select the appropriate device and click Ok.
- Under the menu Server > Settings > Advanced specify the option "Automatically repair media and Volume Sets after a system failure" to enable automatic failover in the cluster configuration.



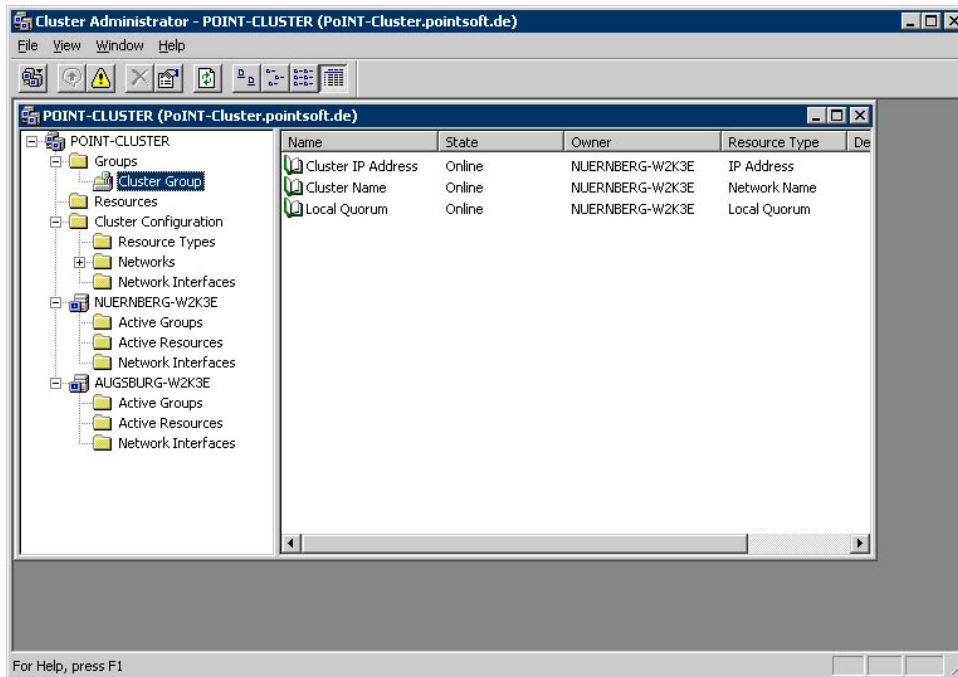
- Activate the configured jukebox drives and the jukebox in the PoINT Jukebox Manager Admin Tool.

iSCSI and PoINT Jukebox Manager Installation on Node B

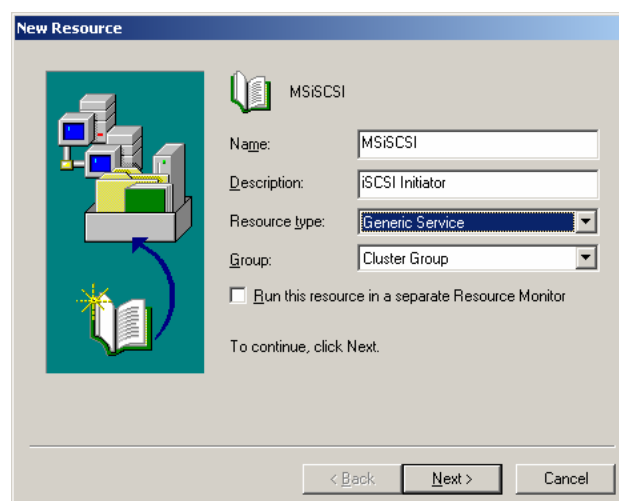
- Shutdown Node A and switch on Node B and repeat steps 3 to 10 on Node B
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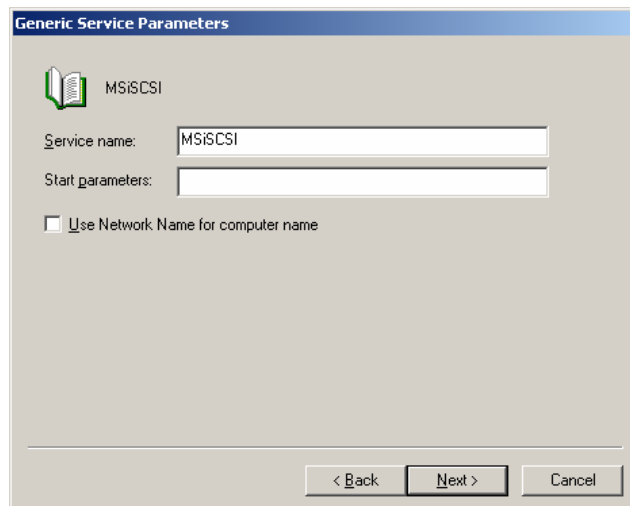
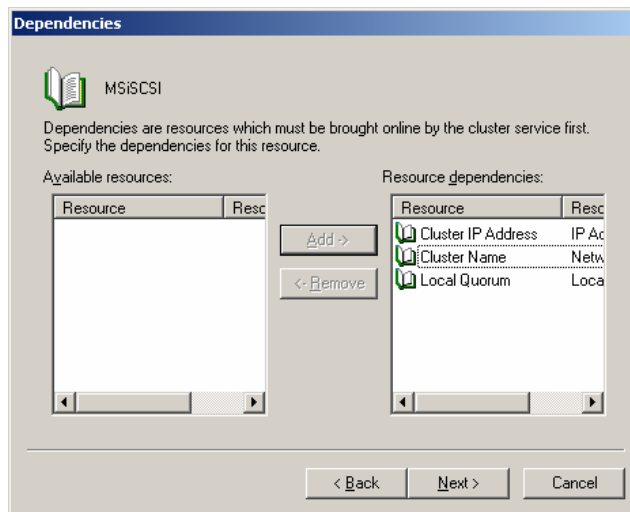
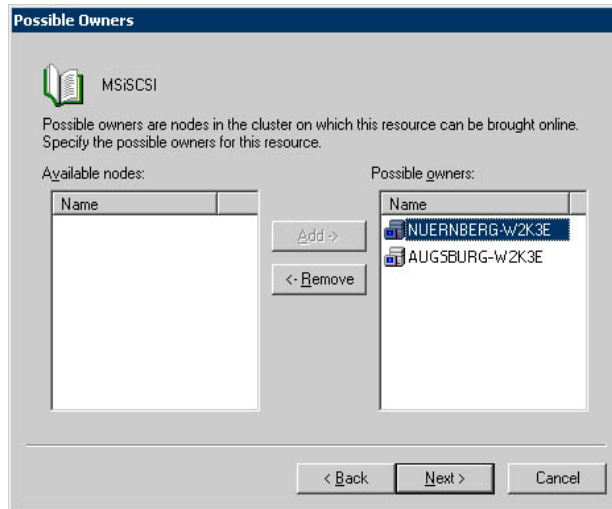
Configuration of services on Node A

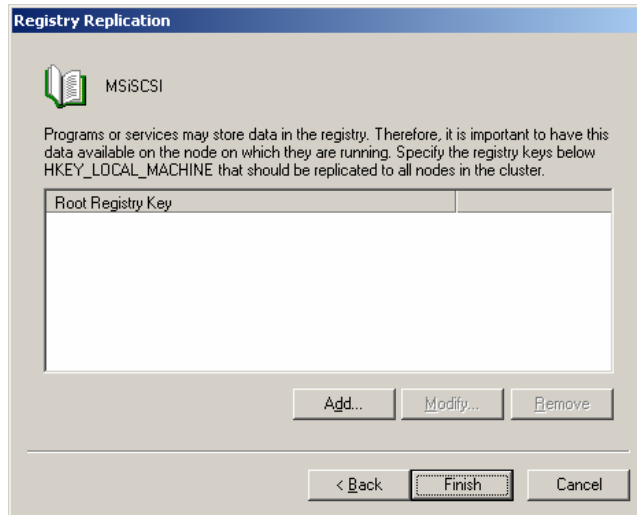
12. Start Node A. (Both nodes must be switch on.) Please ensure that in the cluster installation both nodes are configured and active.
13. In the Microsoft Cluster Administrator create a new cluster and configure (if not automatically configured) the following resources for the defined Cluster Group:
 - Cluster IP Address
 - Cluster Name
 - Local Quorum



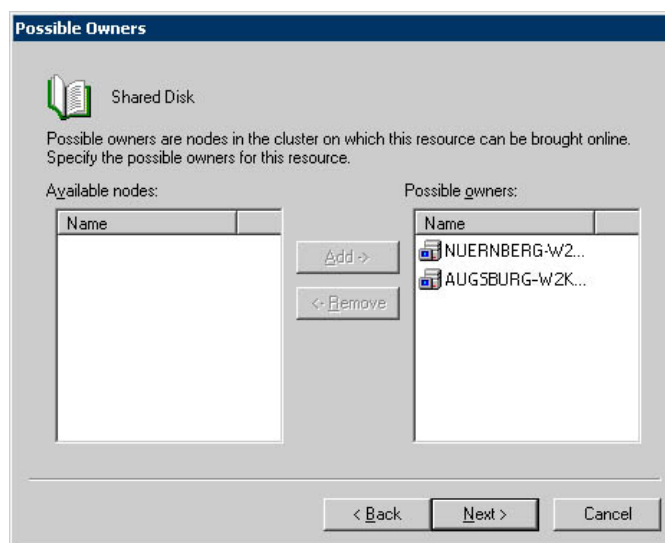
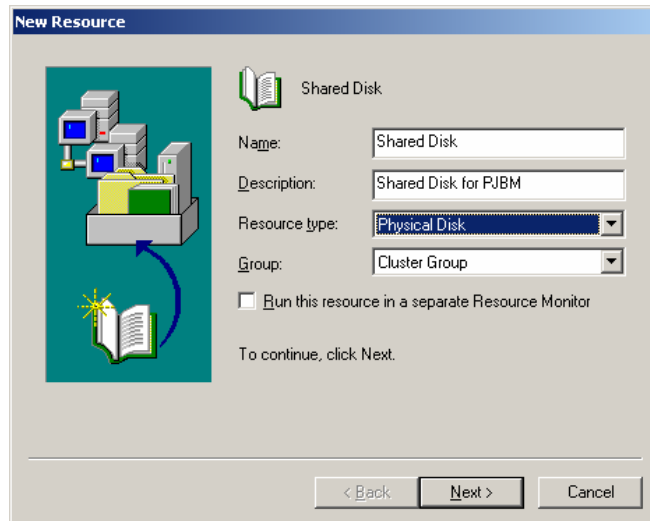
14. Add a new resource for the iSCSI Initiator Service to the Cluster Group and configure it according to the following screen shots:

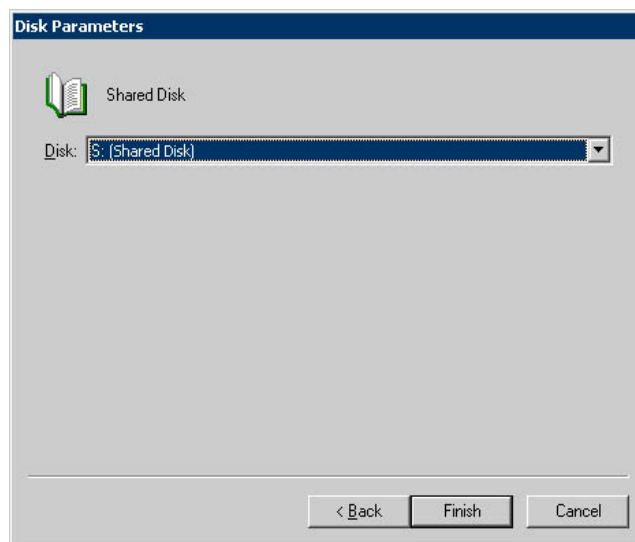
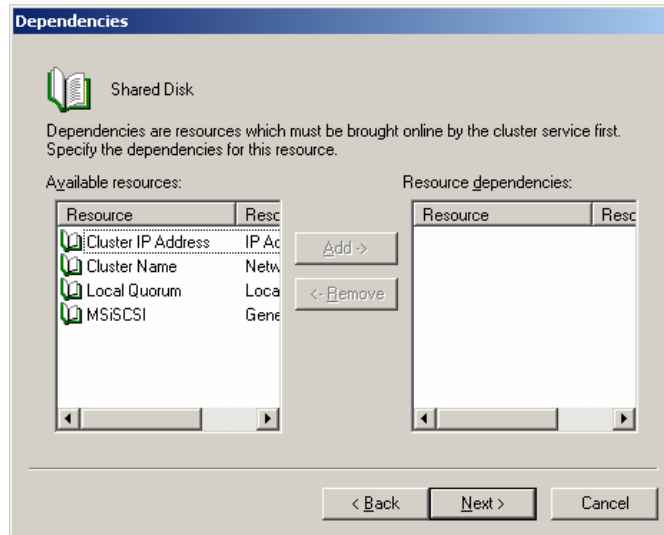






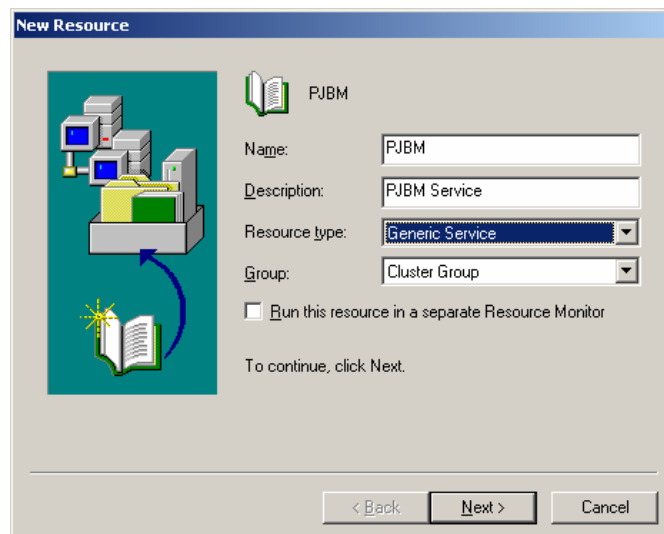
15. Add a new resource for the Shared Disk to the Cluster Group and configure it according to the following screen shots:

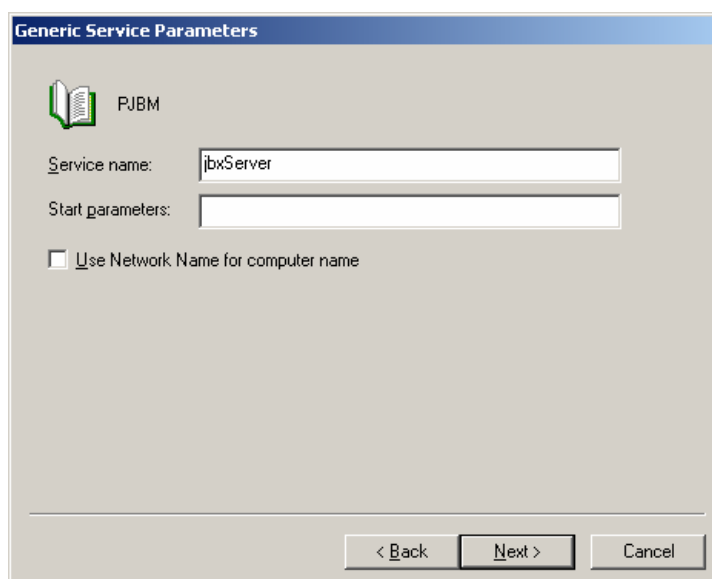
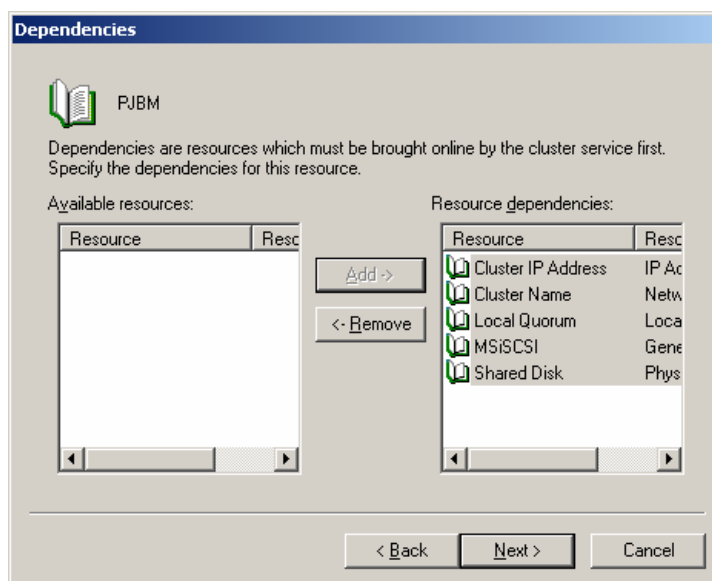
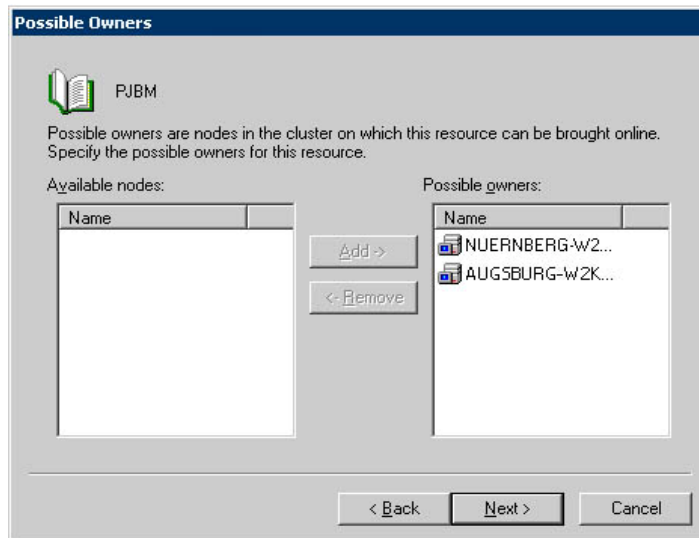


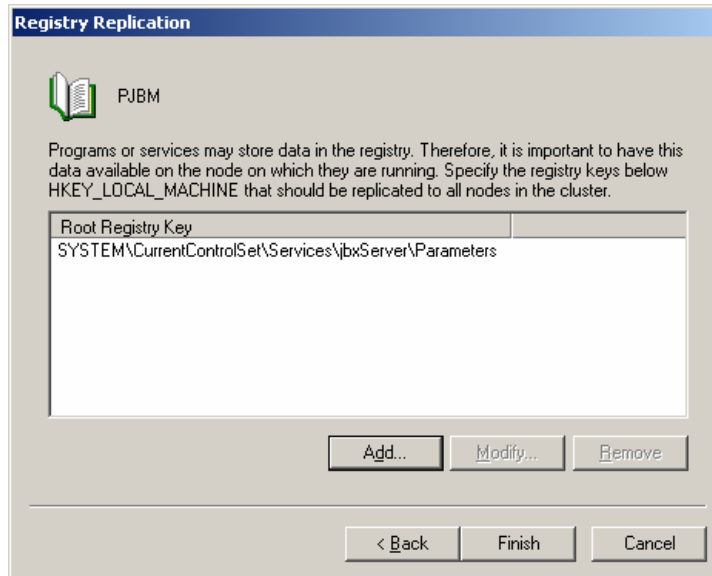
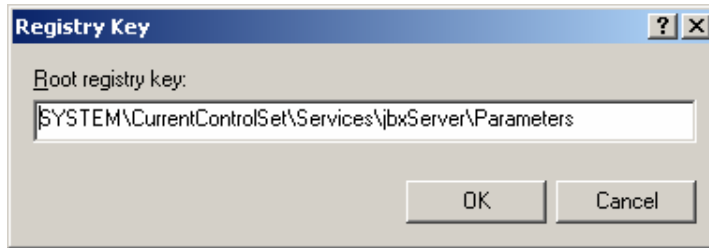


Configuration of PoINT Jukebox Manger Service in the Cluster Administrator

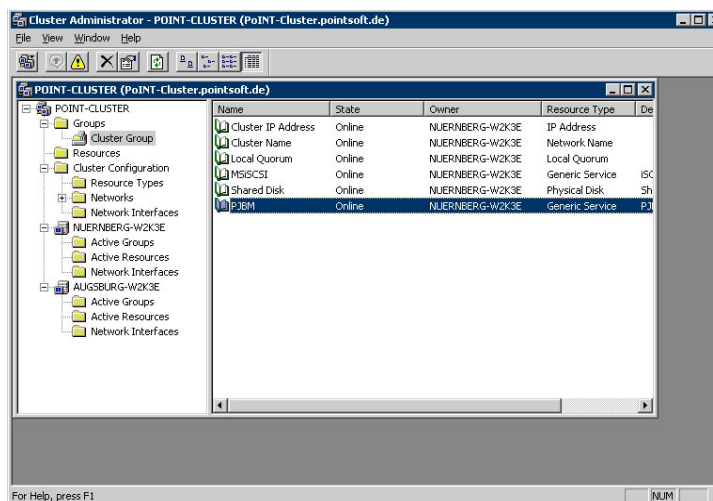
16. Add the PoINT Jukebox Manager service ("jbxServer") as new resource to the Cluster Group and configure it according to the following screen shots:







17. After all resources have been added to the cluster change the state to "online":



Restrictions

Recovery Periods

In case of a failover during a recording operation a possible necessary recovery (rescan) may be time consuming. During this time the file system is not available. The time which is required to perform the rescan depends on different parameters:

- In case Dynamic Image Recording is applied only existing images on the Shared Hard Disk will be rescanned.
- In case of write-once media and no configured Dynamic Image Recording media which file system structure became inconsistent (and media which have not been scanned before) will to be rescanned.
- In case of rewritable media (DVD-RAM, MO, UDO) and configured caching on hard disk (no mirroring, no Dynamic Images) the complete inconsistent Volume Set will be rescanned.

The time which is necessary to perform the recovery depends mainly on the following factors:

- number of files and directories in the image or on the optical medium to be scanned
- access and read times of the Shared Hard Disk (containing the images) or the optical drive (used for scanning inconsistent media)

The following examples provide typical rescan times for a file system structure of a volume with 5.000 files in 50 directories and a maximum directory depth of 5 (medium imported in drive):

- Dynamic Image on a SCSI hard disk ca. 1 sec.
- DVD-R medium scanned in a DVD drive (6x read speed, 150ms access time): ca. 35 sec.
- UDO medium (one side) scanned in a UDO drive ca. 12 sec.

Data in RAM Cache

PoINT Jukebox Manager uses RAM caching (also in combination with selected Write Caching) for files which are written to the file system. From the RAM cache data will be migrated to media (or to Dynamic Images) in optimized units.

A flush operation to a written file ensures that the file is migrated to the medium. If a flush operation is not performed by the application, PoINT Jukebox Manager automatically migrates the data from RAM cache to the media in case of 60 seconds idle time of the corresponding medium and/or if 100 MB of not migrated data stay in RAM cache. This means files which have been written to the file system and which have not been explicitly flushed have to be checked after a failover.

In addition the user can manually perform flushing of data in the Admin GUI under the File System View by executing the command "Flush Write Cache".

ECR and 'AppCon for DocuWare'

The ECR service and the 'AppCon for DocuWare' service are not supported in a cluster.

Recording Jobs

Recording Jobs which are manually started (e.g. Image Jobs, Copy Jobs) will not automatically recovered in case of a failover. This means these jobs have to be restarted again.