



MailMarshal SMTP in a Windows 2003 Enterprise Server Cluster

Technical White Paper

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This document is a step-by-step guide to help implementers of MailMarshal SMTP to effectively install MailMarshal SMTP in a Microsoft Windows 2003¹ Enterprise Server Cluster.

MailMarshal SMTP implemented in this environment will support fail-over from one node within the cluster to another node in the cluster with minimal loss of service availability in the event of a node failure, or the requirement for node maintenance. This implementation includes support for Antivirus software configured within MailMarshal SMTP.

Support for Cluster implementation is included in MailMarshal SMTP 5.0 and later versions.

Note 1: Whilst this document focuses on Windows Server 2003 the general principals can also be applied to Windows 2000 Advanced Server

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Introduction

This White Paper provides an overview of how to install and configure MailMarshal SMTP (hereafter referred to as MailMarshal) in a Windows 2003 Enterprise Server Cluster. Each step is developed in detail.

Target Audience

For the purpose of this document it is assumed that the reader is familiar with Windows 2003 Enterprise Server and Microsoft Cluster configurations. The reader should also have a good understanding of messaging systems, networking architecture and database technology and terminology.

It is also assumed that the reader has an understanding of MailMarshal. The steps required to perform the basic installation of MailMarshal onto any node are not explained here. The process is the same as that for any MailMarshal installation and is covered in the MailMarshal User Guide.

Document Purpose

The intended purpose of this document is to provide information to organizations that intend to implement MailMarshal in a Windows 2003 Enterprise Server Cluster. The intent of this installation could be to provide automatic fail-over for redundancy and continuance of service in the event of a system failure, or scheduled maintenance tasks.

This document does not describe every possible scenario in detail. Those familiar with Microsoft Cluster Services should be able to use the concepts described in this document and apply them to differing cluster or MailMarshal environments.

Preparation

Use the latest available version of MailMarshal (version 5.0 or higher is required however version 6.0 is the recommended version as of this writing). Ensure that the prerequisites needed for MailMarshal are installed on both nodes of the Cluster. For a basic MailMarshal configuration Windows 2003 Enterprise Server has all necessary prerequisites installed by default. However, if Microsoft SQL Server 2000 or 2005 is to be installed on the cluster as well then this should be installed and configured in advance.

Note

Most environments where a Cluster Server is required for service continuance will be large enough to warrant the Microsoft SQL Server database server to be installed elsewhere in the environment.

Plan the Environment

MailMarshal requires a Microsoft SQL 2000 or 2005 Database server to store configuration information and to log reporting information related to email quarantine, traffic and content.

Therefore two general scenarios exist:

1. MailMarshal and Microsoft SQL Server can each reside on a node of the cluster and both reside on a single node in the event of a node failure.
2. MailMarshal can reside on the cluster, with another business application on the other node. In this case the SQL Server will reside on an entirely different server in the network.

It is important that the sizing of the hardware used for the cluster be done with care. In the event of a node failure or the requirement for system maintenance, a single node in the cluster may be required to run all applications that are supported by the cluster. The system should be sized to adequately support this eventuality without unnecessarily delaying message processing.

In the event that assistance is required to plan and size the environment Marshal or your Marshal Partner will be able to assist.

Example Environment

In the example environment presented in this white paper we have used the scenario described previously. This environment is illustrated in Figure 1. The Cluster Server is a dual node Compaq CL850 Server, with 4 GB System Disks in each node and a 9 GB Shared Disk for MailMarshal. Each node has 512MB of RAM. The Report Logging is to a Microsoft SQL 2000 Sever on a Compaq ProLiant 8500. This server has two sets of mirrored disks, one for system and SQL logs, and the other for the SQL 2000 database.

MailMarshal Example Cluster Environment

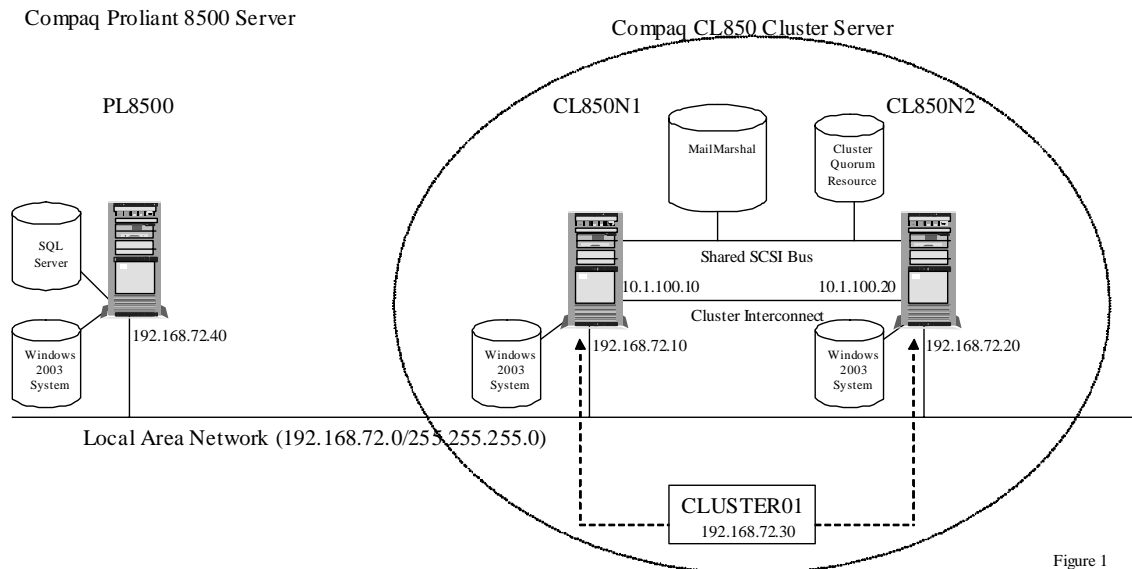


Figure 1

This environment is fairly typical and could well host Microsoft Exchange Server or another internal email system on the other node of the cluster in a smaller environment.

Preparation

The following section gives step-by-step instructions for implementation of the example environment. Following this example the general concepts employed can be used to implement a similar scenario.

Install prerequisites

All prerequisites for MailMarshal are bundled and installed with Windows 2003. These are:

- Microsoft Management Console (MMC)
- Internet Explorer 6.x
- .Net Framework 1.1

It is recommended (but not required) that Windows 2003 Service Pack 1 (SP1) be installed.

Install Reporting Database Software if required

If the Reporting Database is to be on a Microsoft SQL Server not in the Cluster and this has yet to be installed, then this install should be completed prior to the MailMarshal installation. The instructions for performing this installation are supplied with Microsoft SQL Server.

Note that the SQL Server implementation MUST support Mixed mode authentication.

Generic Resource Creation

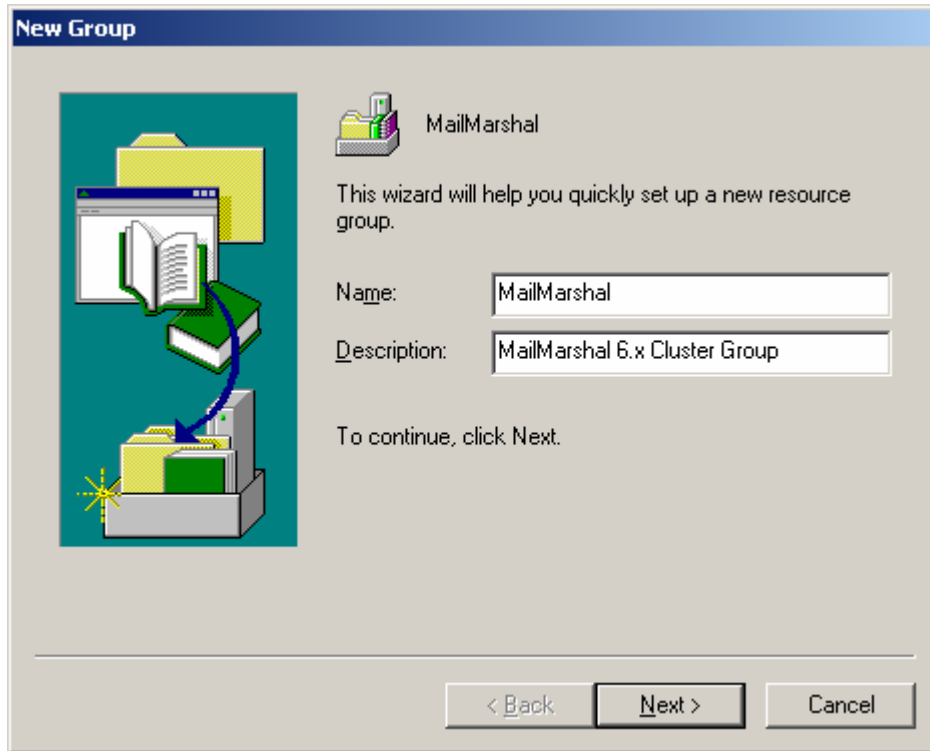
NOTE: **** The following section describes one way of setting up the Cluster Resources. We recognize that there are many ways to do this, so please follow your own Company's policies for configuring them if you prefer. ****

The shared resources within the Cluster must be generated first. These include the Shared Storage (Disk), IP address and Network Name that will be used.

Open the Cluster Administrator and perform the following steps.

Cluster Resource Group

Create a Cluster Group called MailMarshal. This group will house the elements required to host MailMarshal in the Cluster.



Ensure that both nodes of the Cluster are Preferred Owners of the Group. Shared resources should all be created within this group resource.

Once the group is created, bring it on-line.

Shared Storage

Shared Storage should be created that is adequate for MailMarshal. MailMarshal will require about 500Mb of disk; however if message archiving is to be employed, or quarantined data is to be retained for extended periods, this will obviously need to be larger. A separate exercise should be conducted to estimate this disk requirement based on the number of users, volume and type of email and retention days required for message archives and quarantine.

Create a new “Physical Disk” Resource and ensure both nodes are possible owners. No resource dependencies are needed for this Resource.

IP Address

Create a Shared “IP Address” resource and ensure both nodes are possible owners. No resource dependencies are needed for this Resource. This resource will be used to reference the machine by IP address from the network no matter which node in the cluster is hosting MailMarshal.

Note

In our example configuration this IP Address is 192.168.72.30.

Network Name

Create a Shared “Network Name” resource and ensure both nodes are possible owners. The “IP Address” resource you just created will need to be set as a dependency for this Resource. This resource will be used to reference the machine by Name from the network no matter which node in the cluster is hosting MailMarshal.

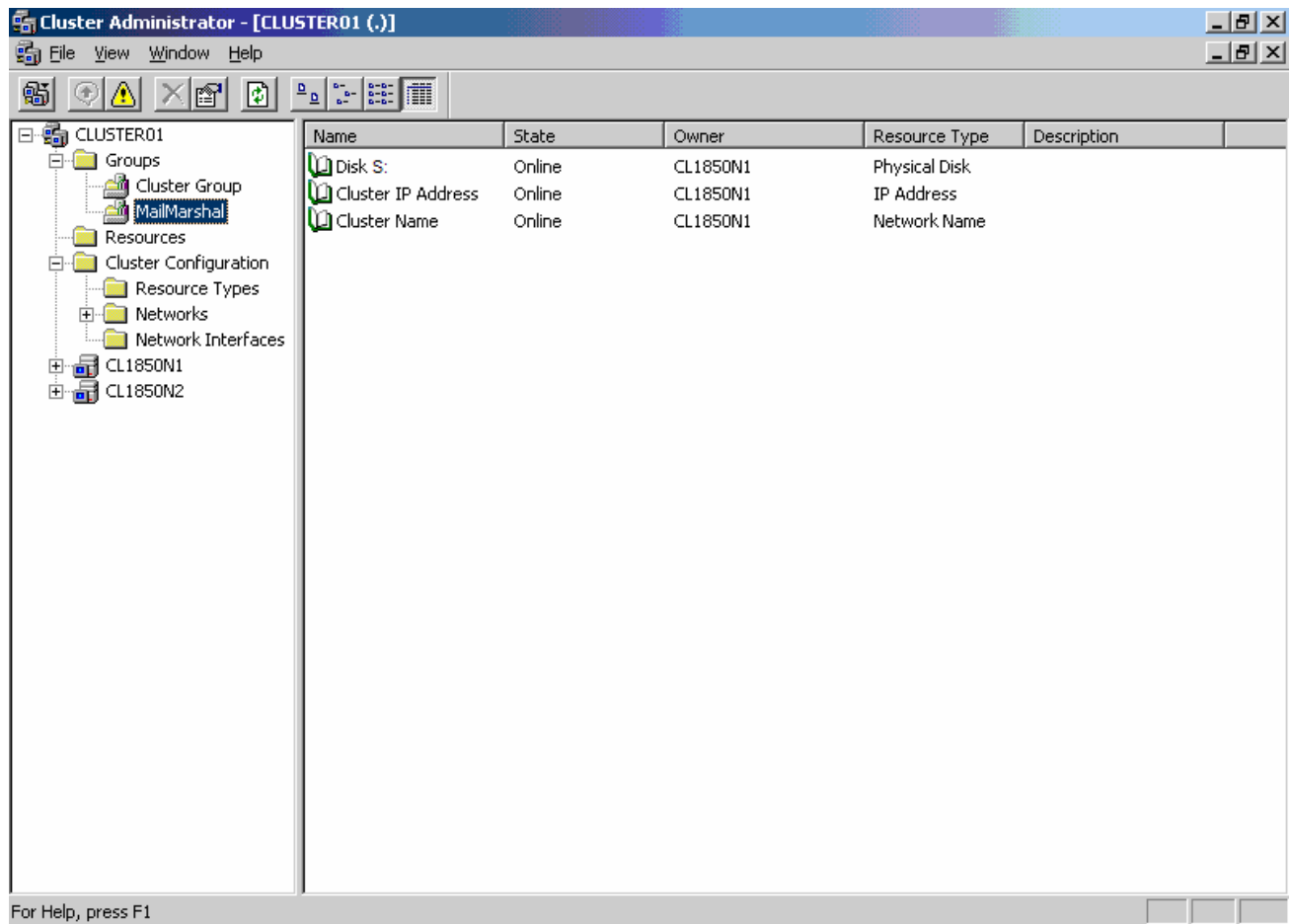
Note

In our example configuration this network name is **CLUSTER01**.

Example Cluster Group

Bring all the newly created Resources on-line.

Once these resources are created they should all be visible located within the MailMarshal Resource Group.



The screenshot shows the Cluster Administrator interface for a cluster named CLUSTER01. The left pane displays a tree view with the following structure:

- CLUSTER01
 - Groups
 - Cluster Group
 - MailMarshal
 - Resources
 - Cluster Configuration
 - Resource Types
 - Networks
 - Network Interfaces
 - CL1850N1
 - CL1850N2

The right pane shows a table of resources:

Name	State	Owner	Resource Type	Description
Disk S:	Online	CL1850N1	Physical Disk	
Cluster IP Address	Online	CL1850N1	IP Address	
Cluster Name	Online	CL1850N1	Network Name	

At the bottom of the window, it says "For Help, press F1".

Cluster MailMarshal Install

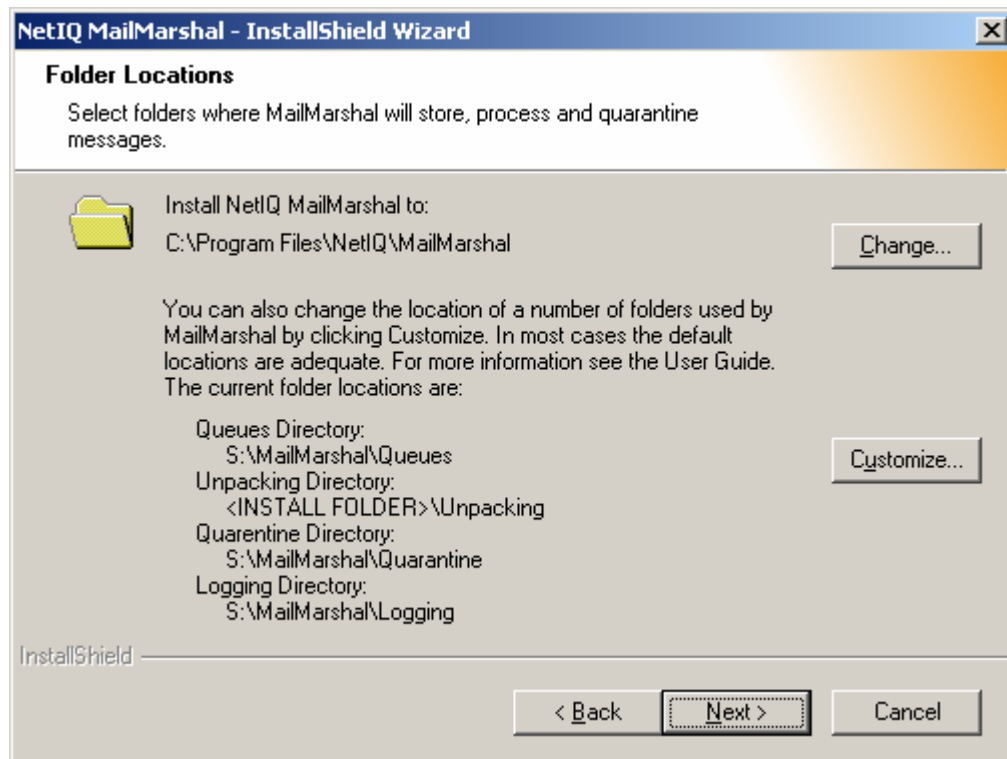
The following steps detail how to install MailMarshal onto the Windows 2003 Enterprise Server Cluster.

MailMarshal will be installed onto the Shared Disk resource and configured into the MailMarshal Resource group created previously.

Note: **** Before Starting this section please ensure that if **HKLM\Software\NetIQ\MailMarshal** key exists in the registry on either Node, that it and all sub-keys below are deleted from both Nodes ****

Installing MailMarshal into the Cluster

1. Install MailMarshal onto Node 1 (CL850N1) of the Cluster choosing a “Standalone MailMarshal Server” Install. On the Folder Locations page click on Customize. Change the Message Processing directories (**EXCEPT** the *Unpacking* directory) to a location on the shared disk resource (perhaps all under a MailMarshal sub-directory). **Do not** launch the Configurator at the end of the initial setup.



2. Once installation is complete, go to the Windows 2003 Service Control applet and stop the MailMarshal Controller Service and the MailMarshal Array Manager Service. Open the Service details and set the Startup type to Manual for all MailMarshal Services. These Services are:

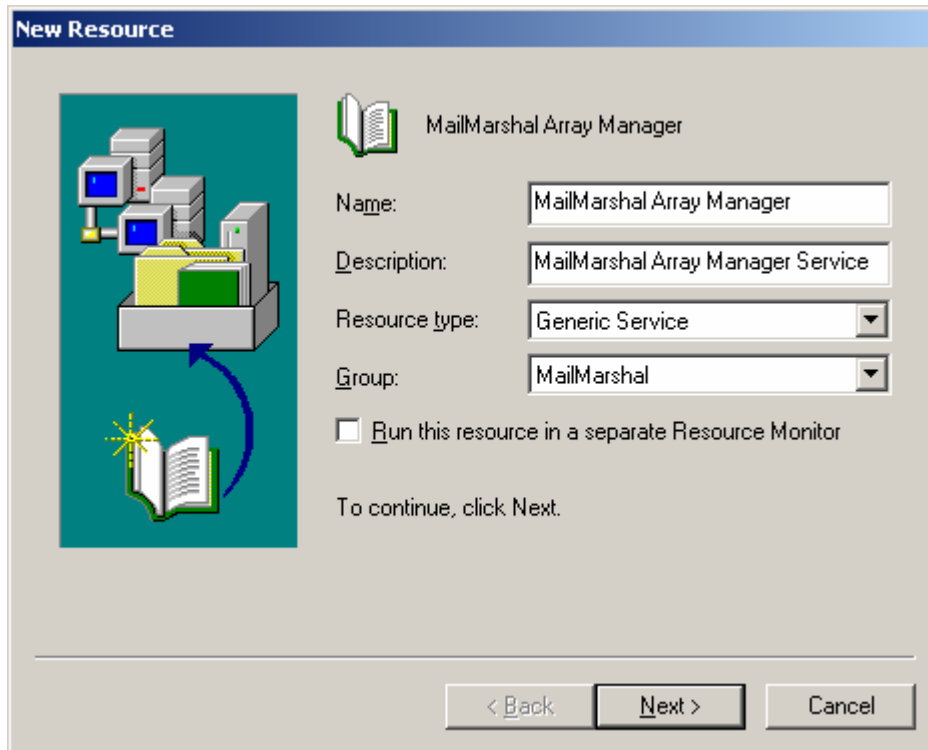
- MailMarshal Array Manager
- MailMarshal Controller
- MailMarshal Engine
- MailMarshal POP3 Service
- MailMarshal Receiver
- MailMarshal Sender

3. Move the MailMarshal Resource group in the Cluster Manager to Node 2 (CL850N2).

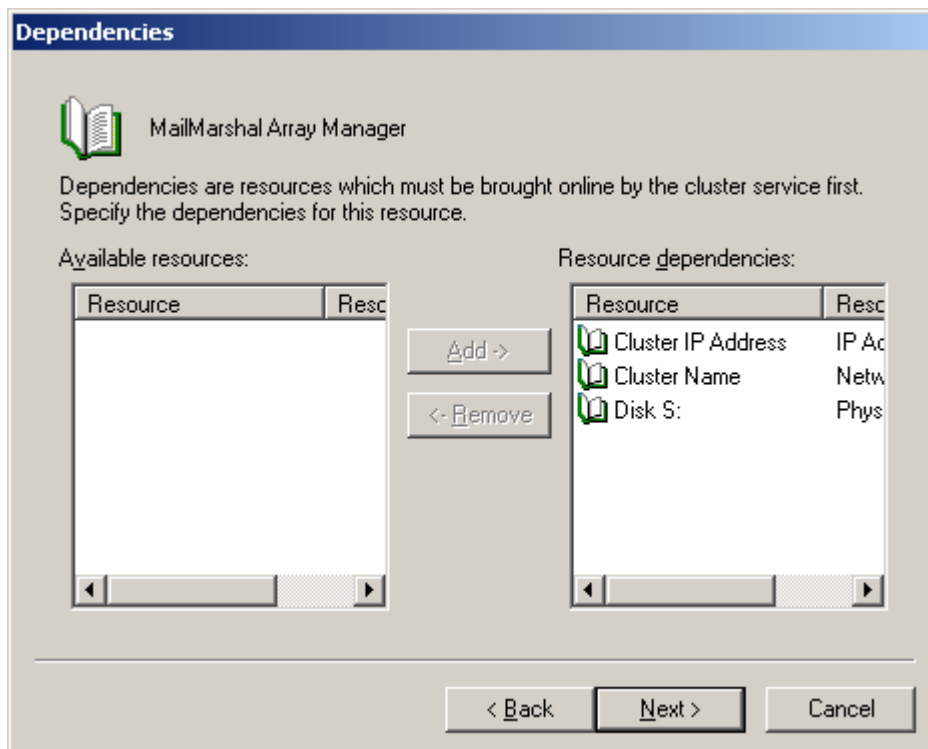
4. Install MailMarshal onto Node 2 (CL850N2) of the Cluster choosing a “Standalone MailMarshal Server” Install and the same options as were selected in Step 1. When prompted to Overwrite or Use the Database created during Step 1, choose to Use the existing Database. **Do not** launch the Configurator at the end of the initial setup.
5. Once installation is complete, go to the Windows 2003 Service Control applet and stop the MailMarshal Controller Service and the MailMarshal Array Manager Service. Open the Service details and set the Startup type to Manual for all MailMarshal Services. These Services are:
 - MailMarshal Array Manager
 - MailMarshal Controller
 - MailMarshal Engine
 - MailMarshal POP3 Service
 - MailMarshal Receiver
 - MailMarshal Sender
6. Move the MailMarshal Resource group in the Cluster Manager to Node 1 (CL850N1).

Configuring Cluster Resources for MailMarshal

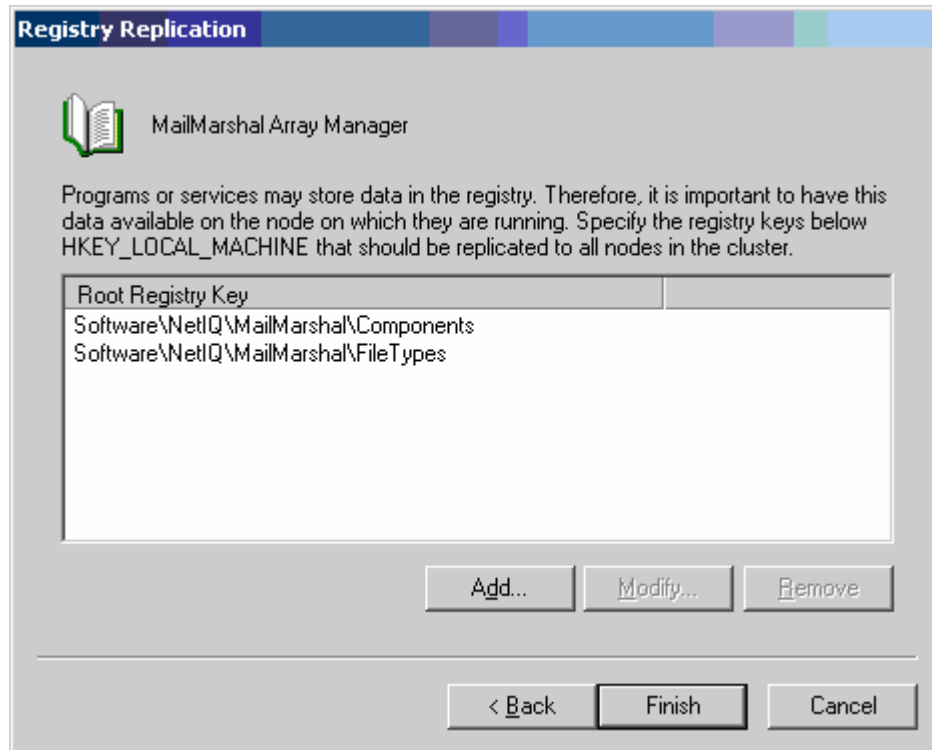
1. In the MailMarshal Cluster Group create a new Generic Service Resource called MailMarshal Array Manager.



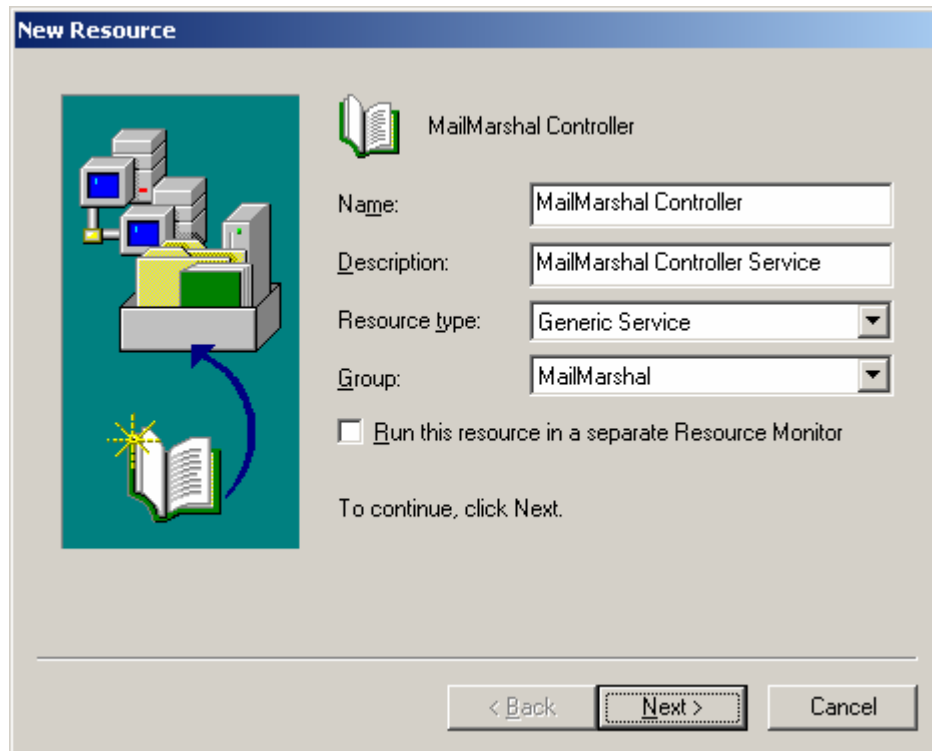
2. Ensure both nodes are Possible owners.
3. In the Resource dependencies add the Shared Disk, IP Address, Network Name as dependant Resources.



4. Use **MMArrayManager** for the Service name.
5. Specify that the following MailMarshal Registry keys should be replicated:

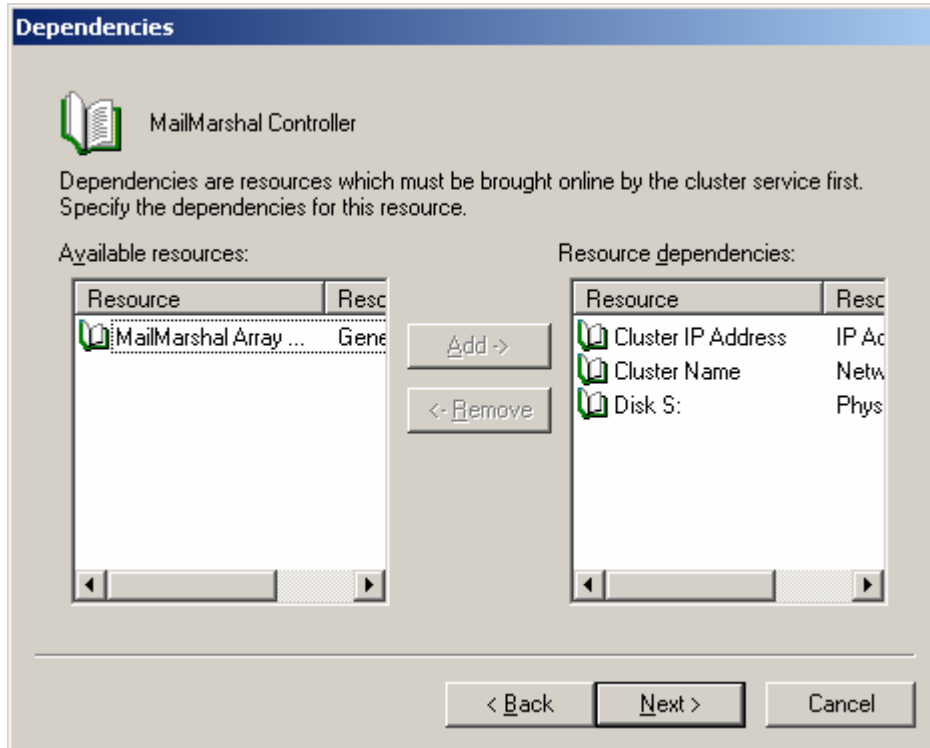


6. Create a new Generic Service resource for the MailMarshal Controller Service.

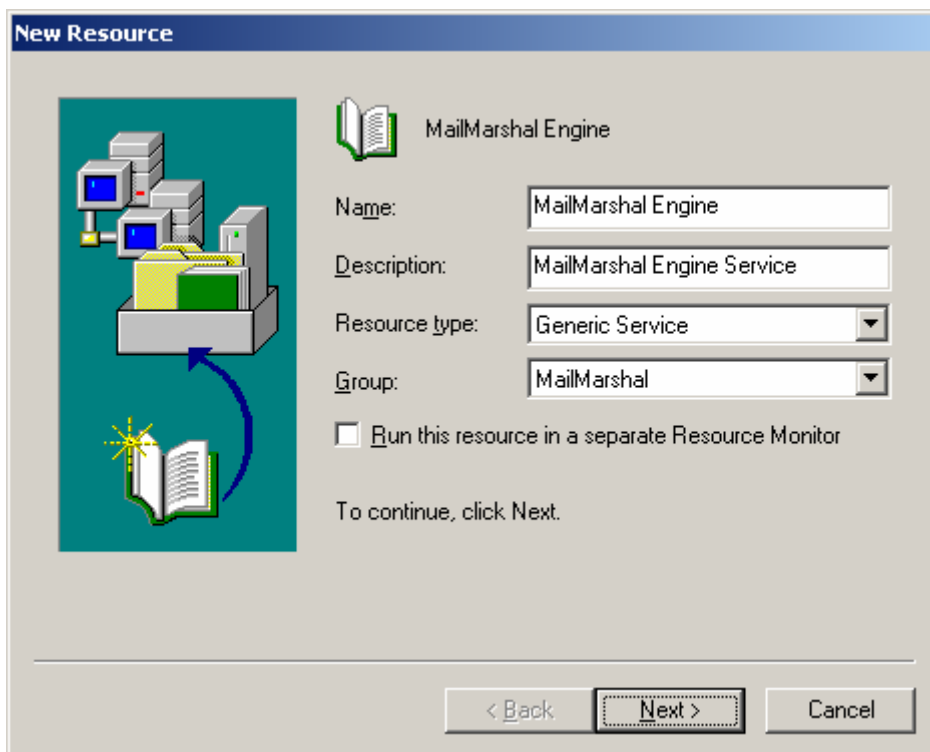


7. Ensure that both nodes are possible owners.

- In the Resource dependencies add the Shared Disk, IP Address, Network Name as dependant Resources.

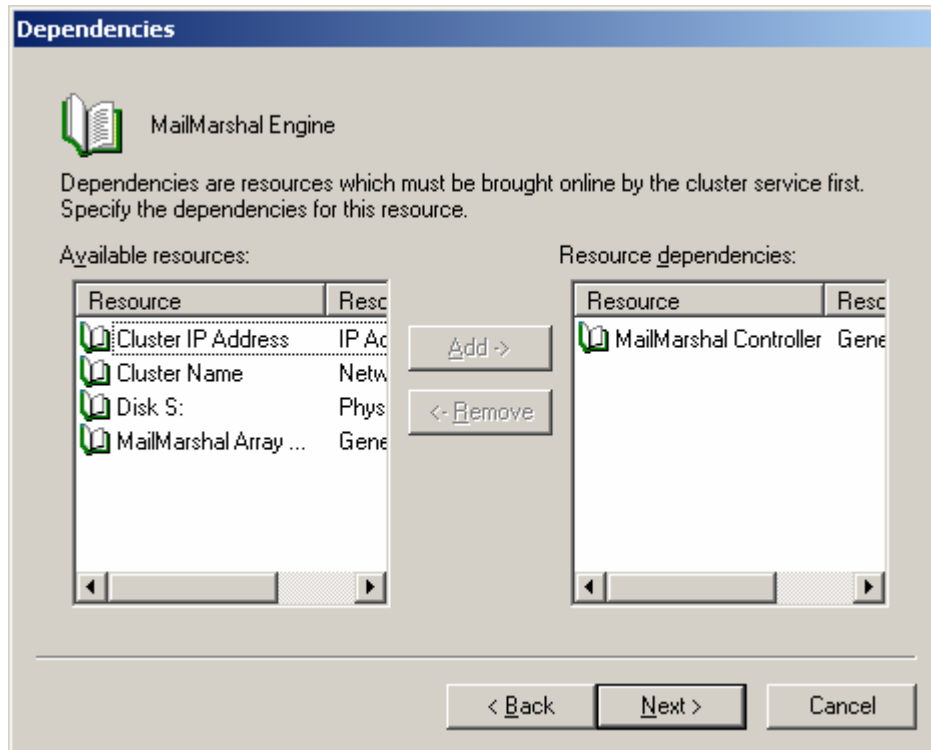


- Use **MMController** as the Service Name.
- No Registry Keys need to be replicated for this resource.
- Create a new Generic Service resource for the MailMarshal Engine Service.



- Ensure that both nodes are possible owners.

- In the Resource dependencies make the MailMarshal Controller as the dependant Resource.

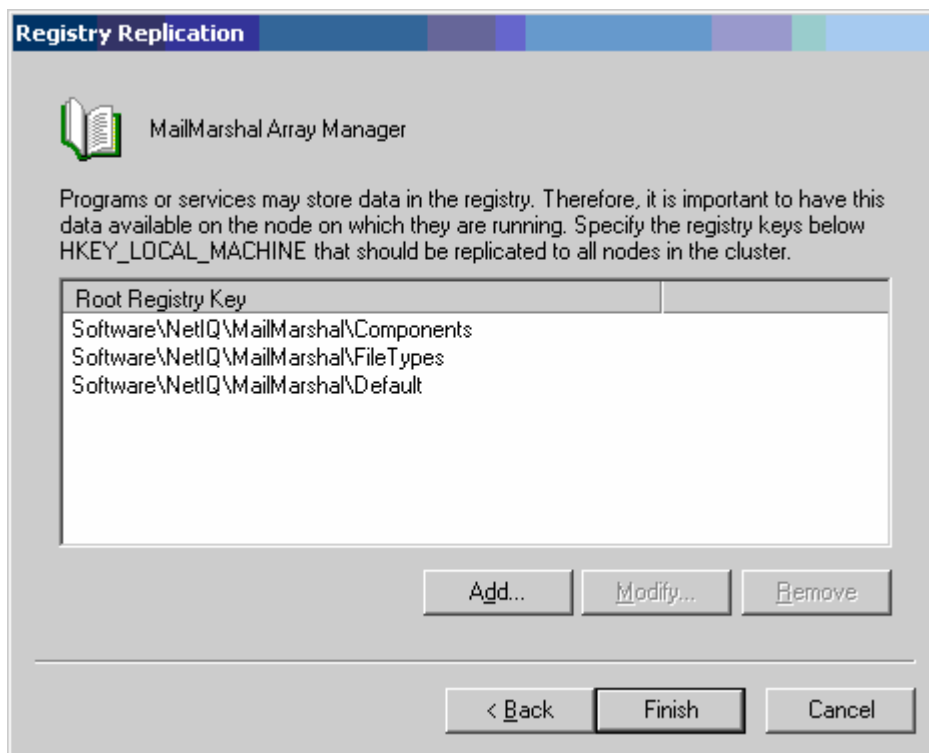


- Use **MMEngine** as the Service Name.
- No Registry Keys need to be replicated for this resource.
- Create Generic Service resources for the rest of the MailMarshal Services. All services use the same parameters as those used for the MailMarshal Engine service, but each one must have a unique Service Name. The Services and Service Names are:

Service	Service Name
MailMarshal POP3	MMPOP3
MailMarshal Receiver	MMReceiver
MailMarshal Sender	MMSender

- Open Explorer and navigate to where MailMarshal was installed. Copy the *Config* directory to the shared disk under the same directory where the MailMarshal Message Processing folders were installed. i.e. *S:\MailMarshal\Config*
- Open the Registry Editor and add a new String Value (REG_SZ) called "Config" under **HKLM\Software\NetIQ\MailMarshal\Manager\Directories** key. The data for this String Value should be the full path to where you copied the Config directory in the previous step.
- Bring the MailMarshal Array Manger and MailMarshal Controller resources online on Node 1 (CL850N1).
- Start the MailMarshal Configurator on Node 1 (CL850N1) and perform the basic configuration of the gateway. Close the MailMarshal Configurator and choose **No** to the Reload Services now prompt.
- Bring the other MailMarshal resources online.
- In the MailMarshal Configurator you will have two nodes in the *Server and Array Configuration* node of the console. These will be CL850N1 and CL850N2. Only one of these nodes will appear to be on-line at any time.

23. Close the MailMarshal Configurator and take the MailMarshal Array Manager and MailMarshal Controller off-line, this will cause the Engine, Sender, Receiver & Pop3 services to go offline as well.
24. Move the MailMarshal Group to Node 2 (CL850N2).
25. Open the Registry Editor on Node 2 (CL850N2) and add a new String Value (REG_SZ) called "Config" under **HKLM\Software\NetIQ\MailMarshal\Manager\Directories** key. The data for this String Value should be the full path to where you copied the Config directory in step 17.
26. Bring the MailMarshal Array Manager on-line on Node 2 (CL850N2).
27. Start the MailMarshal Configurator on Node 2 (CL850N2) and perform the basic configuration of the gateway with exactly the same options you used in step 20.
28. Close the MailMarshal Configurator and choose **Yes** to Reload the Services, if prompted.
29. In the MailMarshal Cluster Group, take the MailMarshal Array Manager Resource off-line
30. Modify the MailMarshal Array Manager Resource and add the **Software\NetIQ\MailMarshal\Default** MailMarshal Registry key to be replicated:



31. Bring all of the MailMarshal Cluster Group Services on-line.
32. Move the MailMarshal Cluster Group back to Node 1 (CL850N1).
33. Now testing can be performed to ensure that MailMarshal moves between nodes correctly when servers fail or have been shut down.

This concludes the installation and configuration of MailMarshal into a Windows 2003 Cluster.

Antivirus Software

When installing Antivirus software onto a Windows 2000 Advanced Server with Clustering it is recommended that you follow the advice of the Antivirus vendor with respect to this environment. However general guidelines and suggestions for installing generic Antivirus software are given here.

Install the Antivirus software separately on each node of the cluster and to the disk on which the Windows 2000 Advanced Server system software is installed (Not a shared resource). Do not configure the Antivirus software as a Cluster resource. In this environment the MailMarshal group can be moved to an alternate node while Antivirus software is upgraded.

Three Antivirus packages have been validated in this environment and found to perform well. They are NetIQ Integrated McAfee Antivirus, Sophos AntiVirus and Norman Virus Control.

Note

Additional Antivirus packages have been validated for use with MailMarshal. They have not been tested in this specific environment, but there is no evidence to suggest they will not work equally well.

NetIQ Integrated McAfee Antivirus

It is recommended that NetIQ Integrated McAfee Antivirus be installed on each node individually in the same manner as for MailMarshal itself. The “NetIQ Integrated McAfee Updater” Service (McAfeeDATUpdater) controls the updating. This service should be created as a Generic Service that fails over between the nodes in the same way as the other MailMarshal Services. This service should only have the Name and IP addresses as dependencies.

More information on NetIQ Integrated McAfee Updater can be found at www.marshal.com and generic information on the McAfee Antivirus solution can be found at www.nai.com

Sophos AntiVirus

It is recommended that Sophos be installed onto the Cluster Nodes from a Central Installation Directory so that updates can be automatically applied to Sophos installed in the Cluster when the Central Installation Directory is updated.

More information on Sophos can be found at www.sophos.com

Norman Virus Control

Norman Virus Control should be installed as described above and then the Antivirus rules in MailMarshal enabled.

More information on Norman can be found at www.norman.com

Known issues

- MailMarshal Services should not be stopped from within the MailMarshal Configurator application. If after changes to the configuration are made MailMarshal prompts you to restart the services, choose **No**. Open the Cluster Manager and restart the services by taking the MailMarshal Controller offline, and then bringing the MailMarshal Controller and other MailMarshal services online.
- The default installation of the MailMarshal Configurator on each node of the Cluster connects to the local MailMarshal server.

To use the MailMarshal Configurator tool to connect to the shared Network name from a Cluster Node, you must create a MMC snap-in definition file on a machine other than a Cluster Node. This is due to configuration locking logic in the Configurator.

To create a new snap-in file:

1. On a workstation that has the MailMarshal Configurator tool installed, start the Microsoft Management Console (MMC). Choose **Console > New** from the menu.
 2. Choose **Console > Add/Remove Snap-in** from the Menu, and click **Add**.
 3. Select MailMarshal Configurator and click **Add** and then **Close**.
 4. Click **Close** and when prompted enter the Network Name Resource allocated to MailMarshal on the Cluster (in the above example, CLUSTER01).
 5. Choose **Console > Save As** from the Menu and save the .MSC file to disk.
 6. Copy the .MSC file to the Nodes of the cluster.
 7. On each Node, create appropriate shortcuts to the .MSC file. When the file is opened, it will start a MailMarshal Configurator connected to the Shared Network Name resource.
- When changes are made to the MailMarshal Configuration it is recommended that the MailMarshal Controller be taken offline and then the Controller and other MailMarshal resources brought back online to ensure that the replication of registry information is completed.
 - Automatic Spam Updates must be performed manually. Updates should be copied to the Shared Config folder (e.g. S:\MailMarshal\Config) as well as the local C:\Program Files\NetIQ\MailMarshal\Config on both Nodes.

Further Information

Further information can be obtained by contacting Marshal Support: www.marshal.com/support
Support is also available through your local Marshal Partner.