HP Network Node Manager Software Support on Microsoft Windows Clusters

Quick Start Configuration and Setup Guide
For Microsoft Windows Server 2003 operating system
February 2008

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Contents

Preface

This document provides information about HP NNM Software support on a Microsoft Windows Cluster environment. (Tested with Microsoft Windows Cluster on Microsoft Windows Server 2003 Enterprise Edition – Service Pack1)

This document is written with the following assumptions:

- Existing NNM users can migrate to Clusters using the instructions provided in detail.
- NNM on Microsoft Windows Clusters supports Solid Embedded Database.
- NNM deployment on Microsoft Windows Clusters is not tested for the following cases:
  - Support for SQL Server :
    Configuration of SQL Server on windows cluster is not presently tested for NNM, but the configuration may still continue to work.
  - Support for Oracle Database :
    NNM Cluster is not presently tested for support on Oracle database, but the configuration may still continue to work.
  - NNM SPI :
    Although the co-existence of NNM SPI with NNM is not presently tested on Microsoft Windows Cluster environment, the co-existence may still continue to work.
- Two nodes, NNMNODE1 and NNMNODE2 are configured to work in a cluster environment.
- A shared disk (S:\) is available for NNM Database.
- The virtual IP address is specified for NNM.(For example xxx.yyy.zzz.www)
- The cluster network name corresponding to the virtual IP address is to be specified. (For example NNMCLUSTER)

Any references to the illustrations are based on the above data.

This data may not be valid for the installation site and it might differ based on the user configuration and choice.

Configuring NNM as a Cluster Resource

Prerequisites and Assumptions

To install NNM on a clustered environment, the following prerequisites are necessary:

- The hardware configuration must be identical on both the nodes.
- Windows Server 2003 Enterprise edition is installed on both the nodes.
- Microsoft Windows Cluster Setup installed and running
- Cluster Administrator tool installed and running
- Cluster.exe command line utility is installed and running
- A utility to create NTFS Junction Points - Symbolic Links (Example: Junction v1.04, Junction Link Magic) in Windows is installed.
- Read Section 2. NTFS Junction Point Feature for support and pre-requisite.

The following configuration is necessary:

1. There are two nodes that must be configured to work in a cluster environment. In this document these are shown as NNMNODE1 and NNMNODE2.

2. Both the nodes must be running and the user is logged on to the node, NNMNODE1.

3. There is a shared disk (for example S:\).

4. The Shared Disk must support space requirements as demanded by the HP NNM Software Database store.

5. NNM 7.53 will be installed on all the nodes.

All the scripts required for configuring NNM for Windows Clusters are available from NNM **Intermediate Patch 16** or later versions of the Intermediate patch.

Once you install 'Intermediate Patch 16' or later versions of the Intermediate patch, you can find all cluster related scripts under the location **$OV_MAIN_PATH\bin** as mentioned below:

VB Script File	Location
ClusterConfiguration.vbs	$OV_MAIN_PATH\bin\ClusterConfiguration.vbs
ovProMon.vbs	$OV_MAIN_PATH\bin\ovProMon.vbs
ovConf.vbs	$OV_MAIN_PATH\bin\ovConf.vbs

Installation Procedure for NNM 7.53

Refer to HP Network Node Manager Installation Guide to install NNM on both the nodes: NNMNODE1 and NNMNODE2 onto the local Disk (For example C:\).
You can find this guide at the following locations:

- http://h20230.www2.hp.com/selfsolve/manuals
- Location on your NNM DVD:
  - UNIX: /manuals/
  - Windows: \manuals\
- Location on your installed system:
  - UNIX: /opt/OV/www/htdocs/C/manuals/
  - Windows: <install drive>\Program Files\HP OpenView\www\htdocs\C\manuals\

Using Cluster Administrator Tool

You can use the **Cluster Administrator** tool for configuring and managing the cluster resources.

You can access this tool as follows:
Click **Start** Menu → **Program** → **Administrative Tools** → **Cluster Administrator**
Alternatively, the executable is also available at the following location:
%SystemRoot%\Cluster\CluAdmin.exe

Configuring NNM Cluster resource before NNM installation

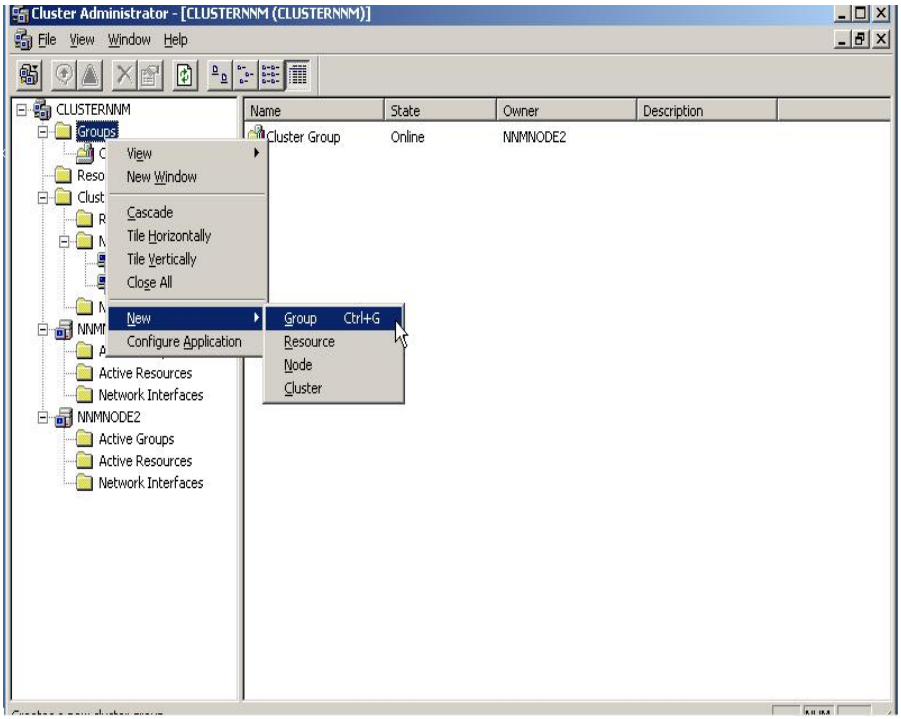
Steps involved in configuring the cluster resources for NNM

The section "Creating NNMCLUSTER Resource Group" alone illustrates the screenshots for configuring NNMCLUSTER resource group. You can use Cluster Administrator to configure all the other resources with the information listed for each and every resource group.

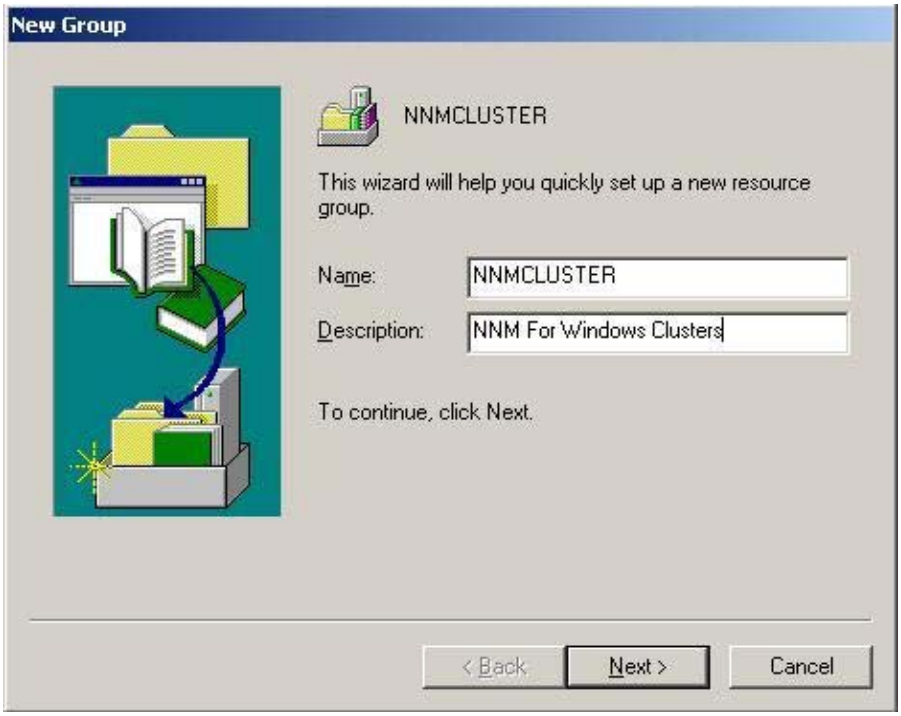
- Creating NNMCLUSTER Resource Group
- Creating IP address resource
- Creating Network Name resource
- Creating a Shared Disk Resource

Creating NNMCLUSTER Resource Group

The following screenshots (1.4.1.1 through 1.4.1.4) explains the procedure to create and configure NNMCLUSTER Resource group for administering the NNM.

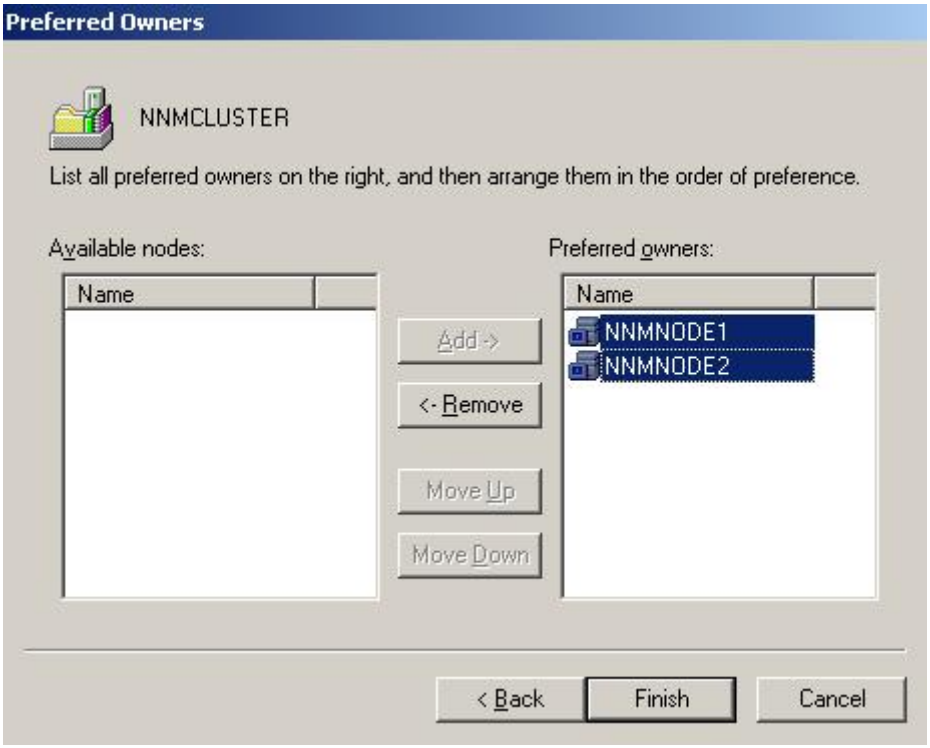


1.4.1.1 – Figure shows the procedure to start the creation of a new Group using Cluster Administrator Tool



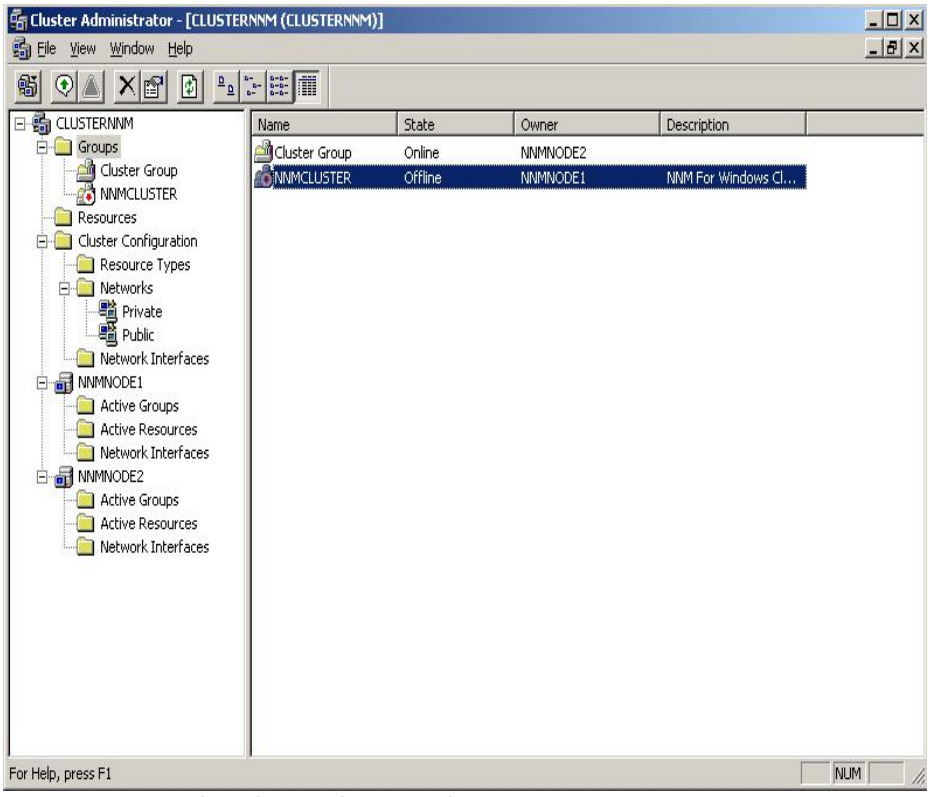
1.4.1.2 – Figure shows the Name and the description you must provide for

the new resource group



1.4.1.3 – Figure lists the Preferred Owners for the NNMCLUSTER Group.

Select the nodes that you want to configure to work in a cluster environment. Click Finish.



1.4.1.4 - Figure lists the newly created resource group.

Creating IP Address Resource

Resource	Resource Parameters	Values
New Resource	Name	NNM IP
	Description	Floating IP Address for NNM
	Resource Type	**IP Address**
	Group	NNMCLUSTER
Possible Owners	Possible Owners	NNMNODE1 NNMNODE2
Dependencies	Resource dependencies	Not Applicable
TCP/IP Address Parameters	Address	<Enter the Floating IP Address>
	Subnet mask	255.255.255.0
	Network	Public
	Enable NetBIOS for this address	Make sure that the Checkbox is selected.

Creating Network Name Resource

Resource	Resource Parameters	Values
New Resource	Name	NNMNTK
	Description	Network Name for Floating IP Address
	Resource Type	**Network Name**
	Group	NNMCLUSTER
Possible Owners	Possible Owners	NNMNODE1 NNMNODE2
Dependencies	Resource dependencies	NNM IP [IP Address Resource]
Network Name Parameters	Name	NNMCLUSTER
	DNS Registration must succeed	Make sure that the Checkbox is selected.

Creating a Shared Disk Resource

Resource	Resource Parameters	Values
New Resource	Name	Shared Disk
	Description	Shared Disk for NNM
	Resource Type	**Physical Disk**
	Group	NNMCLUSTER
Possible Owners	Possible Owners	NNMNODE1 NNMNODE2
Dependencies	Resource dependencies	Not Applicable
Disk Parameters	Disk	<Select the Shared Disk Drive>

You must now change the state of the Shared Disk to Online. You can do this by right-clicking the Shared Disk resource and selecting Bring Online. The Owner of the Shared Disk is the machine the user is currently logged in, NNMNODE1.

Warning: Do NOT bring any other resources Online

NTFS Junction Point Feature

Using "NTFS Junction Points" for NNM Data

By using junction points, you can graft a target folder onto another NTFS folder or "mount" a volume onto an NTFS junction point.

Junction Points are primarily used to "move the database of NNM from Local Disk onto the Shared Disk to ensure that the data is synchronized across all the nodes at any given instance"

For Example: To move the database of NNM would mean moving the contents of the NNM Data and user editable/configurable data folders namely: "**backgrounds, bitmaps, conf, databases, fields, help, lrf, registration, snmp_mibs, symbols, tmp and www**" from the Local disk (Say C:\Program Files\HP OpenView\) onto the Shared Disk (S:\) and then creating the Junction Points to the source being Local Disk and the destination for the Junction points being the Shared disk.

Pre-requisites for using Junction Points

The source (host) folder (Local Disk)

- Must be located on a volume formatted with NTFS 5.0 or higher. NTFS 5.0 is supported on computers with Windows 2000, Windows XP and higher. Windows NT 4.0 with Service Pack 4 can read from and write to NTFS 5.0 volumes, but the new features in NTFS 5.0 are disabled under Windows NT 4.0

- Must be an empty folder, if not the creation of a junction point would make its contents unreachable.

The destination (target) folder (Shared Disk)

- Can be a folder on a FAT or NTFS volume.

- Should not be located on a network volume or on a removable disk.

- Junction points work best when they are mounted on the same volume.

- If a junction point is mounted such that the target folder and host folder are on different physical disk resources, the resources must be in the same cluster group. The physical disk resource that contains the host folder should be dependent on the physical disk resource that contains the target folder. If the drive that contains the target folder does not come online, the drive that contains the host folder does not start.

Junction Point Precautions

- Use NTFS security to protect junction points from inadvertent deletion.
- Use NTFS security to protect files and directories targeted by junction points from inadvertent deletion or other file system operations.
- Never delete a junction point using Explorer, a del /s command, or other file system utilities that walk recursively into directory trees. These utilities will affect the target directory and all subdirectories. Instead, use Junction Link Magic to delete junction points.
- Use caution when applying security ACLs (Access Control List) or changing file compression in a directory tree that includes NTFS junction points.
- Do not create namespace cycles with NTFS junction points.
- Place all your junction points at a secure location in a namespace where you can test them out in safety, and other users will not mistakenly delete them or walk through them.

Post Installation Activities

Moving NNM Data onto the Shared Disk

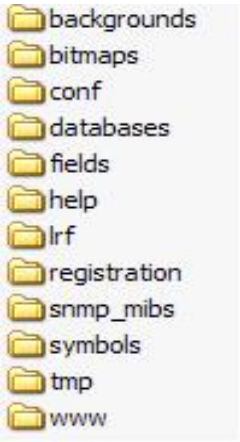
a. Log onto NNMNODE1

b. Ensure that the Shared Disk resource is with NNMNODE1

c. Before moving the data, take a backup of NNM data and user configurable data folders and preserve them. This would involve backing up the folders (Refer Figure 3.1.1) in <Install folder>\ (<Install folder> refers to the folder in which HP NNM Software is installed)

d. Ensure that a Folder set is created in Shared Disk (Example S:\ Drive) to accommodate for the Data files. Example: S:\Program Files\HP OpenView\ may not exist. You need to manually create new folders recursively from S:\ to get S:\Program Files\HP OpenView\. This would ensure uniformity and clarity during further actions.

e. Copy the 'Database' and the user configurable data onto the Shared Disk. This would involve copying ONLY the following "NNM Data folders" onto Shared Disk.



3.1.1 – Figure shows the shared data contents of NNM

f. Ensure that the copying the above mentioned data files is successful.

g. Delete ONLY the contents of the "NNM Data folders" (Refer Figure 3.1.1) that was copied onto the shared disk from the local disk. Now only the EMPTY "NNM Data folders" would be present in the Local Disk

h. Create the Junction Points (symbolic links) to the local disk for all the "NNM Data Folders" (Refer Figure 3.1.1) from the Shared Disk (Using the Freeware Software Junction Link Magic [or] linkd.exe shipped with Windows Server 2003 Resource Toolkit).

Junction Point (Host Folder): Local Disk (Eg. C:\ Program Files\HP OpenView\conf)

Destination (Target Folder): Shared Disk (Eg. S:\ Program Files\HP OpenView\conf)

Note: "Junction Link Magic" Software is a freeware available and it is presented with a convenient GUI and easy to use interface.

Automating Tasks After Installing NNM to Enable Clusters on Shared Disk using VB Script:

Alternatively, you can use the VB Script "ClusterConfiguration.vbs" to automate "**step d through step h**". This script is located at the following location in Windows:
$OV_MAIN_PATH\bin\ClusterConfiguration.vbs

Before executing this script, you would require "linkd.exe" to be installed and available. (linkd.exe is a tool to create Junction points in Windows NTFS; this is shipped with Windows Server 2003 Resource Toolkit).

Pre-conditions:

I. Log onto to the Node where NNM is to be uninstalled.

II. Ensure that no OV processes are running by checking that no Cluster resources of NNM cluster Group is "ONLINE".

III. Take only the Shared Disk resource Online and the owner being the Node presently logged in.

Execute the script from command line using the following command:
cscript.exe <Path to the VB Script File>\ClusterConfiguration.vbs

i. Log onto NNMNODE2.

j. Ensure that the Shared Disk resource is with NNMNODE2.

k. Repeat step d through step h. Alternatively, you can automate these steps. For more information, see Automating Tasks After Installing NNM to Enable Clusters on Shared Disk Using VB Script.

Copying the Script File

Location of VB Script Files:

VB Script File	Location
ClusterConfiguration.vbs	$OV_MAIN_PATH\bin\ClusterConfiguration.vbs
ovProMon.vbs	$OV_MAIN_PATH\bin\ovProMon.vbs
ovConf.vbs	$OV_MAIN_PATH\bin\ovConf.vbs

Copy the ovConf.vbs and ovProMon.vbs VB Script files to the local disk. Make sure that the location is identical on all nodes.

For Example, if the ovConf.vbs is copied onto C:\Program Files\Common Files\Hewlett-Packard\NNMCluster in NNMNODE1, then the copy must exist in same location on NNMNODE2: C:\Program Files\Common Files\Hewlett-Packard\NNMCluster in NNMNODE2

Configuration Activities

Configuration activities involve the following:

- Changes to ov.conf File
- Changes to ovspmd.auth File
- Changes to ovwdb.auth File
- Changes to ovw.auth File
- Customizing the ovProMon.vbs Script

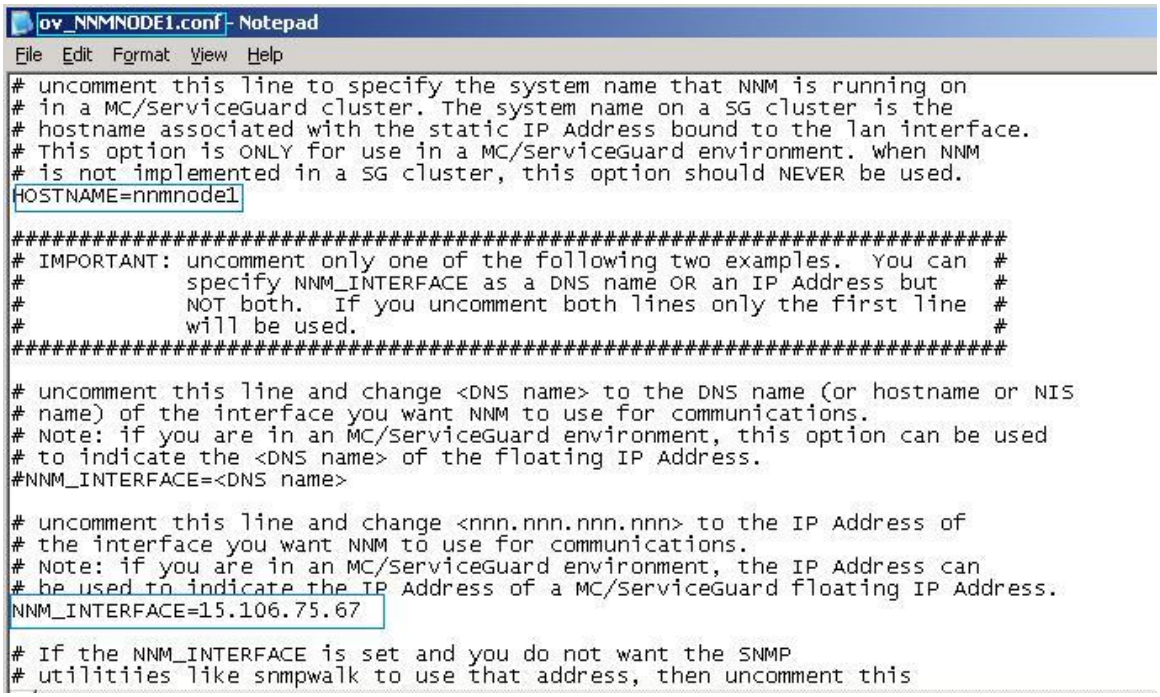
Changes to ov.conf File

Go to the following location:
(Say "S:\Program Files\HP OpenView\conf\")

1. Create the ov_<host name>.conf**. If there are two cluster nodes, then there must be two conf files one for each node** under "**S:\Program Files\HP OpenView\conf\" directory.**
   (For example, ov_nnmnode1.conf, ov_nnmnode2.conf) and edit the HOSTNAME by typing the appropriate node name.
   Hint: To get the Node Name\Host Name, go to Start -> Run. Type **cmd** and execute **ipconfig /all** and look for the "Host Name" entry.

2. The NNM_INTERFACE must be assigned the value of the floating IP address (as shown in figure below).

   Similarly create ov_nnmnode2.conf file.



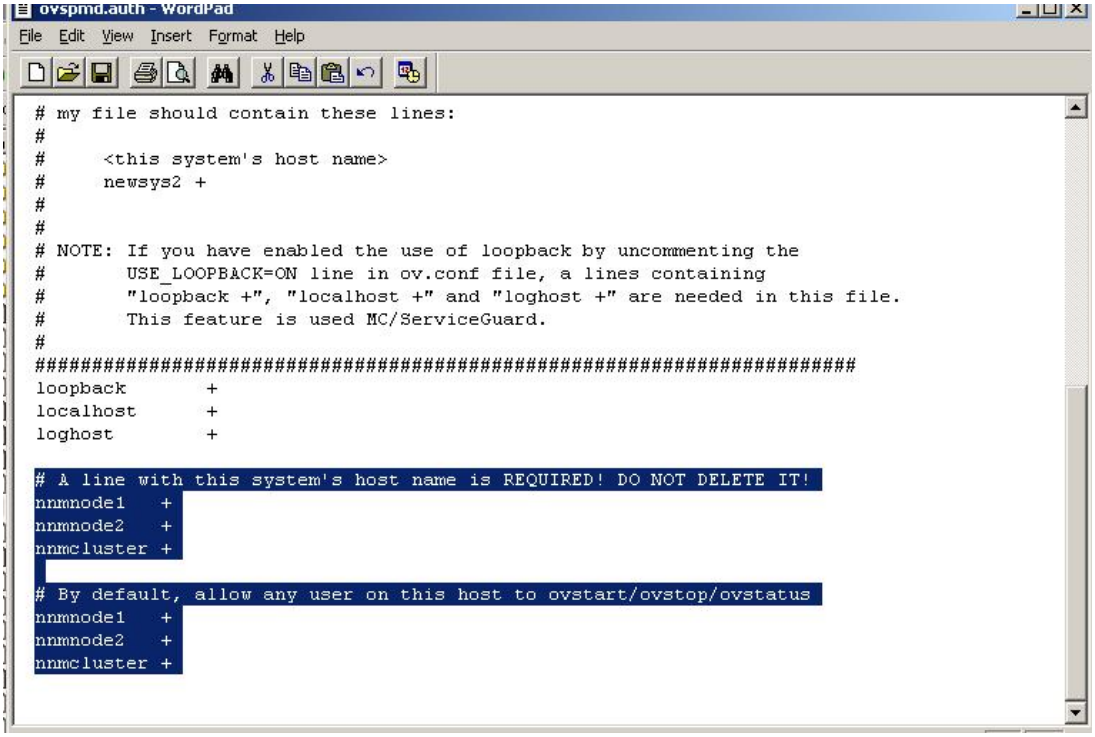
3.3.1.1 – Figure highlights HOSTNAME and NNM_INTERFACE supplied to the ov_nnmnode1.conf file. Similarly create conf files for all the cluster nodes.

Caution: ovConf.vbs Script File must be managed as a cluster resource to synchronize between nodes. Refer Copying the script File section for more details.

Changes to ovspmd.auth File

Go to the following location:
"S:\Program Files\HP OpenView\conf\"

Edit the **ovspmd.auth** file to include the NNMNTK Network Name. You must include all the nodes you have configured to work in a cluster environment as specified in the cluster resource. (See Figure below)



3.3.2.1 – Figure highlights node names to be specified.

Changes to ovwdb.auth

Go to the following location:
"S:\Program Files\HP OpenView\conf\"

By default, any user on any host can have access to connect to ovwdb daemon. If the user decides to restrict the access, then at least all of the following entries are required to be present in ovwdb.auth file to specify the authorized hosts connecting to ovwdb:

- All the Cluster Nodes (NNMNODE1 and NNMNODE2)
- Cluster Network Name (As specified in the Network Name resource - NNMCLUSTER)

Changes to ovw.auth

Go to the following location:
"S:\Program Files\HP OpenView\conf\"

By default, any user on any host can have access to connect to ovw sessions. If the user decides to restrict the access, then at least all of the following entries are required to be present in ovw.auth file:

- All the Cluster Nodes
- Cluster Network Name (As specified in the Network Name resource)

These entries guarantee that the authorization is granted to all the cluster nodes.

Customizing the ovProMon.vbs Script

The ovProMon.vbs script is used to monitor the health of the OV NNM processes. This file must be edited to include the cluster and group names that you have configured for your NNM cluster.

Steps to customize the VB Script file:

1. **Editing the ovProMon.vbs file:**
   To edit the script file, right click the file and select Edit. Uncomment necessary sections to effect the changes.

2. **Monitoring specific OV Processes:**
   Enter all the processes that need to be monitored onto the array element (ovProcList) in the script.

3. **Specifying total processes to be monitored:**
   Enter the total number of processes listed in the array to the variable (**TotalProcessesManaged**).

4. **Specifying the Cluster command for Failover:**
   Enter the details for the Move Group onto the **clustercmd** variable.
   CLUSTER <Name of the Cluster> GROUP <CLUSTER GROUP NAME> /MOVETO

   Hint: The Cluster command can also be modified so as to move to specific nodes. *(Please refer Microsoft Help center for more details on using cluster.exe utility)*

5. **Specifying the Retry value for Failover:**
   Retry value is the value for which the cluster tries to bring the killed\stopped processes back on the same node. If it reaches the threshold value of Retry, then the entire NNM Cluster Group is moved to another node.
   Enter the Retry value for failover to **retryValue** variable.

   Note: All the details on customizing the script are provided in the script with examples. After customizing the script, save the file and make sure that the changes are made to all the nodes. This is because all the nodes must contain the updated script file for the clusters to work.

Configure NNM Cluster Resource After NNM Installation

After performing the Configuration activities, proceed with the configuration of the following Cluster resources under NNMCLUSTER resource group:

- Creating "HP OpenView Process Manager" Generic Service Resource
- Creating "HPOvTrcSvc" Generic Service Resource
- Creating "SNMP EMANATE ADAPTER" Generic Service Resource
- Creating "SNMP EMANATE Master Agent" Generic Service Resource
- Creating "SNMP Trap Service" Generic Service Resource
- Creating "ovconf" Generic Script Resource
- Creating "ovProMon" Generic Script Resource

Ensure all the OV Processes are stopped before proceeding with configuring these resources. The Cluster resources are now owned by NNMNODE1. Let all the Cluster Resources be OFFLINE

Creating "HP OpenView Process Manager" Generic Service Resource

Resource	Resource Parameters	Values
New Resource	Name	OVsPMD
	Description	HP OpenView Process Manager
	Resource Type	**Generic Service**
	Group	NNMCLUSTER
Possible Owners	Possible Owners	NNMNODE1 NNMNODE2
Dependencies	Resource dependencies	NNMNTK [Network Name resource]
		Shared Disk [Shared Disk resource]
Generic Service Parameters	Service Name	**HP Openview Process Manager**
	Start parameters	Not Applicable
Registry Replication	Root Registry key	Not Applicable

Creating "HPOvTrcSvc" Generic Service Resource

Resource	Resource Parameters	Values
New Resource	Name	HPOvTrcSvc
	Description	HP OpenView Trace service
	Resource Type	**Generic Service**
	Group	NNMCLUSTER
Possible Owners	Possible Owners	NNMNODE1 NNMNODE2
Dependencies	Resource dependencies	Shared Disk [Shared Disk resource]
Generic Service Parameters	Service Name	**HPOvTrcSvc**
	Start parameters	Not Applicable
Registry Replication	Root Registry key	Not Applicable

Creating "SNMP EMANATE ADAPTER" Generic Service Resource

Resource	Resource Parameters	Values
New Resource	Name	SNMP EMANATE ADAPTER
	Description	Emanate Agent for Windows NT
	Resource Type	**Generic Service**
	Group	NNMCLUSTER
Possible Owners	Possible Owners	NNMNODE1 NNMNODE2
Dependencies	Resource dependencies	Shared Disk [Shared Disk resource]
Generic Service Parameters	Service Name	**wpa**
	Start parameters	Not Applicable
Registry Replication	Root Registry key	Not Applicable

Creating "SNMP EMANATE Master Agent" Generic Service Resource

Resource	Resource Parameters	Values
New Resource	Name	SNMP EMANATE Master Agent
	Description	Emanate Master Agent
	Resource Type	**Generic Service**
	Group	NNMCLUSTER
Possible Owners	Possible Owners	NNMNODE1 NNMNODE2
Dependencies	Resource dependencies	Shared Disk [Shared Disk resource]
Generic Service Parameters	Service Name	**EMANATE**
	Start parameters	Not Applicable
Registry Replication	Root Registry key	Not Applicable

Creating "SNMP Trap Service" Generic Service Resource

Resource	Resource Parameters	Values
New Resource	Name	SNMPTRAP
	Description	SNMP Trap Service
	Resource Type	**Generic Service**
	Group	NNMCLUSTER
Possible Owners	Possible Owners	NNMNODE1 NNMNODE2
Dependencies	Resource dependencies	OVsPMD [HP OpenView Process Manager]
Generic Service Parameters	Service Name	**SNMPTRAP**
	Start parameters	Not Applicable
Registry Replication	Root Registry key	Not Applicable

Creating "ovconf" Generic Script Resource

Resource	Resource Parameters	Values
New Resource	Name	ovconf
	Description	ov.conf resource
	Resource Type	**Generic Script**
	Group	NNMCLUSTER
Possible Owners	Possible Owners	NNMNODE1 NNMNODE2
Dependencies	Resource dependencies	Shared Disk [Shared Disk resource]
Generic Script Parameters	Script filepath	<Location of ovConf.vbs script file>

Caution:

Before clicking Finish, ensure that the VB Script file is already available in the location mentioned onto the Script filepath on all the cluster nodes.

Always copy the **ovConf.vbs** script file onto a **LOCAL DISK** and **NOT** on the Shared Disk. This path must be identical on all nodes. For Example, if ovConf.vbs is copied to C:\Program Files\Common Files\Hewlett-Packard\NNMCluster in NNMNODE1, then the ovConf.vbs must be copied to the same location in NNMNODE2. (NNMCluster folder needs to be created manually)

To configure ovconf resource, perform the following:

- Copy the ovConf.vbs file to the local disk of all the nodes in the same path. This path should be same across all the nodes for the cluster resource to recognize the path.
- Specify the VB Script file path while configuring the resource.

Creating "ovProMon" Generic Script Resource

This script is used for monitoring the health of all the OV Processes. The user may configure and customize the script so as to monitor only select OV Processes.

Resource	Resource Parameters	Values
New Resource	Name	ovProMon
	Description	HP OV Process Monitor
	Resource Type	**Generic Script**
	Group	NNMCLUSTER
Possible Owners	Possible Owners	NNMNODE1 NNMNODE2
Dependencies	Resource dependencies	Shared Disk [Shared Disk resource]
		OVsPMD [HP OpenView Process Manager]
Generic Script Parameters	Script filepath	<Location of ovProMon.vbs script file>

Caution:
Before clicking Finish, ensure that the VB Script file is already available in the location mentioned onto the Script filepath on all the cluster nodes.

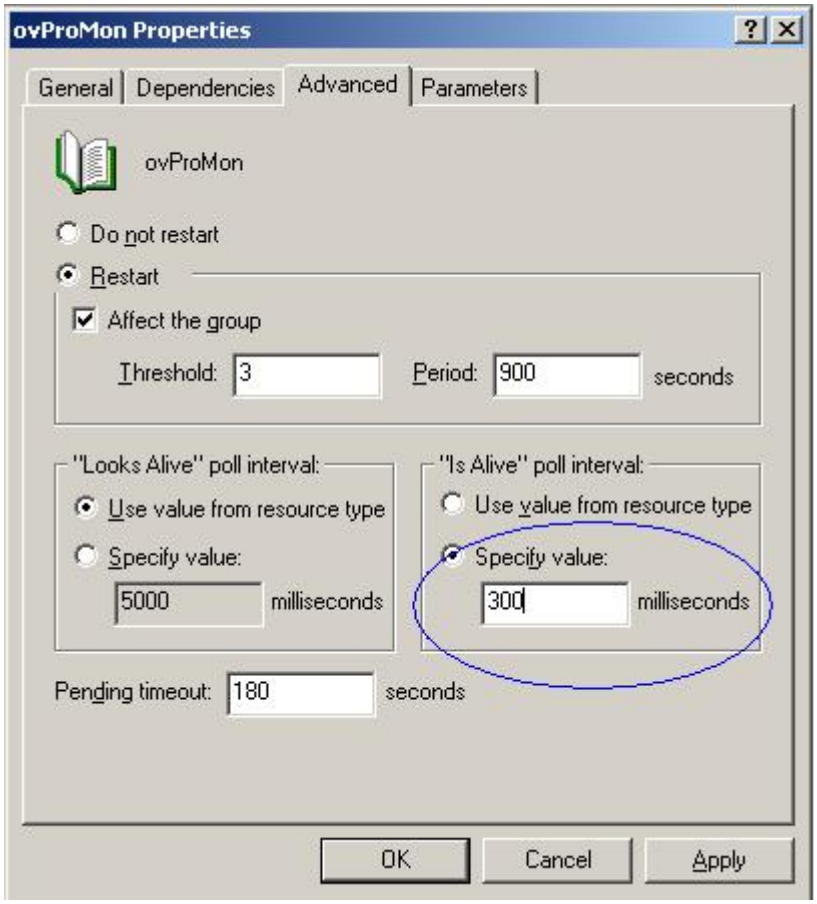
Always copy the **ovProMon.vbs** script file onto a **LOCAL DISK** and **NOT** on the Shared Disk. This path must be identical on all nodes. For Example, if ovProMon.vbs is copied to C:\Program Files\Common Files\Hewlett-Packard\NNMCluster in NNMNODE1, then the ovProMon.vbs must be copied to the same location in NNMNODE2. (NNMCluster Folder is manually created)

To configure ovconf resource, perform the following:

- Copy the ovProMon.vbs file to the local disk of all the nodes in the same path. This path should be same across all the nodes for the cluster resource to recognize the path.
- Specify the VB Script file path while configuring the resource.

Now right click the created resource and select properties to get the following screenshot.

Click Advanced tab and configure the Poll interval for "is Alive"



3.4.7.1 – Figure shows the configuration of Poll interval for "is Alive"

The Poll interval is up to the user to decide as to how frequently do the monitoring for the application needs to be done.

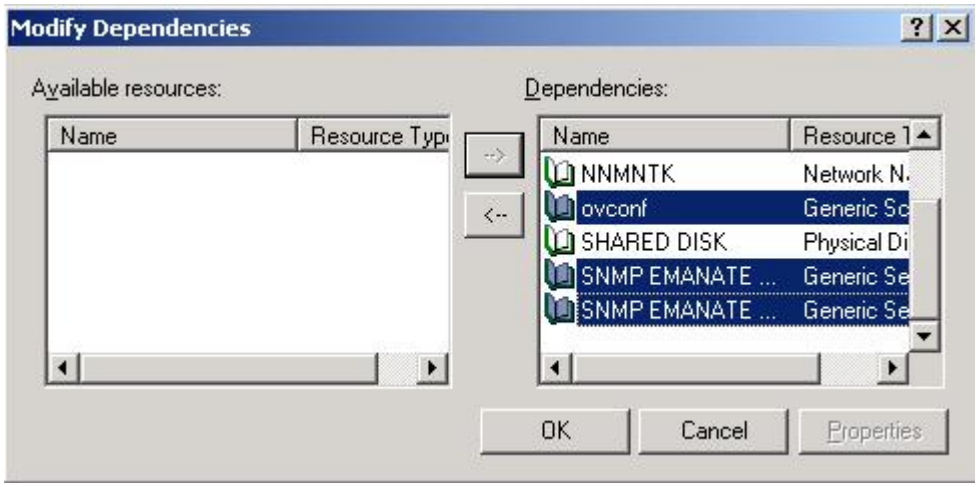
Moreover the VB Script file ovProMon.vbs is customizable by the user. The user may customize the script for monitoring select OV Processes and not all of them.

For more details, refer to Customizing the ovProMon.vbs script

Bringing all the NNMCLUSTER group resources Online

Before bringing all the NNMCLUSTER resources online, right click OVsPMD resource and select Properties. In the Properties, select "Dependencies" tab. Click "Modify" and select the following available resources as Dependencies:

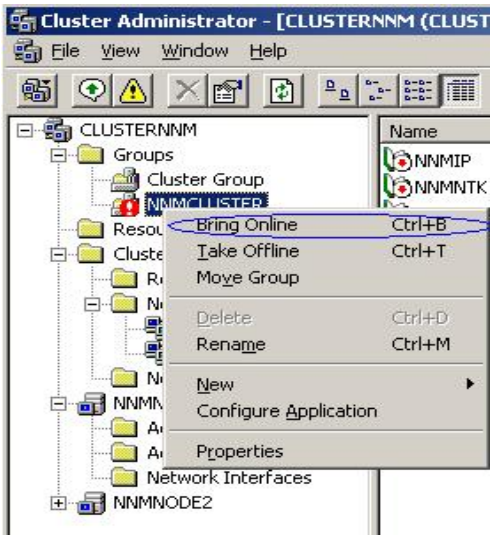
- HPOvTrcSvc
- ovconf
- SNMP EMANATE ADAPTER
- SNMP EMANATE Master Agent



3.4.8.0 – Figure shows how to modify dependencies for OVsPMD resource.

After all the resources are configured and NNM installed on all the cluster nodes, you can bring the entire group online as follows:

Right click NNMCLUSTER group and click **Bring Online**. This completes the configuration for NNM on Microsoft Windows Clusters.



3.4.7.1 – Figure shows how to bring the created resources under the NNMCLUSTER Group to online state. This makes sure that NNM is cluster managed.

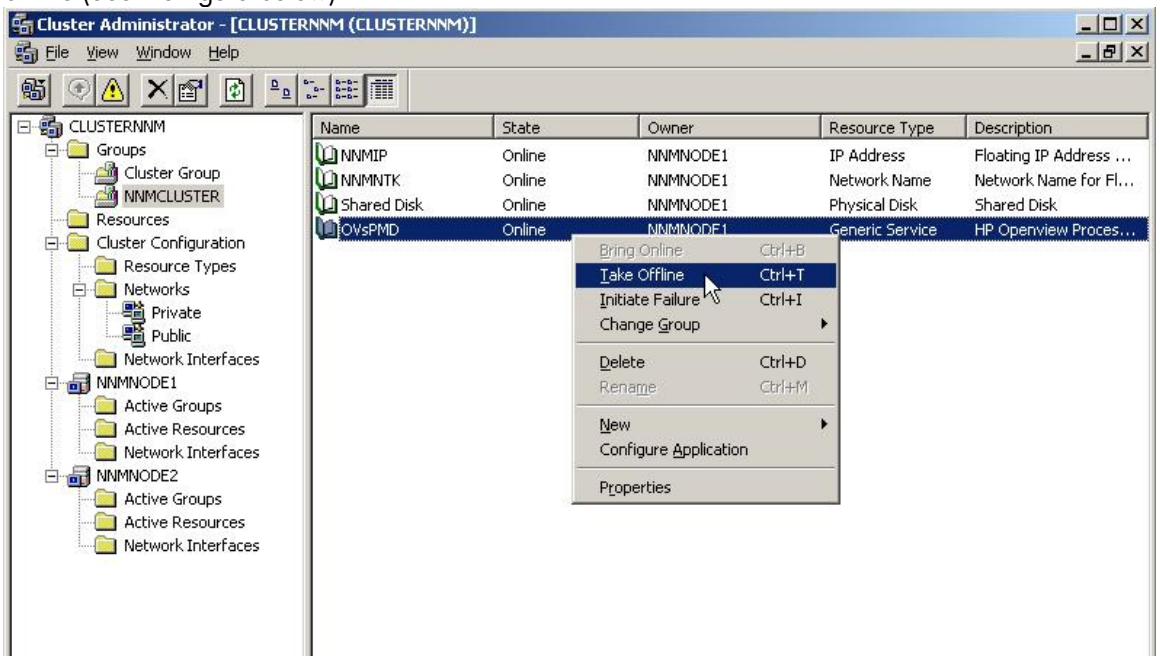
Caution: Ensure that NNM is installed on all the nodes before performing any failover operations.

Precautions

While performing certain operations, there are some precautions that are to be judiciously followed.

ovstop command usage

Before stopping OV services using ovstop, you must make sure that you move the OVsPMD resource to offline (See the figure below)



3.5.1.1 - Figure shows how to make the OVsPMD resource offline (to perform ovstop), right click the resource and select Take Offline.

Accessing NNM Home Base

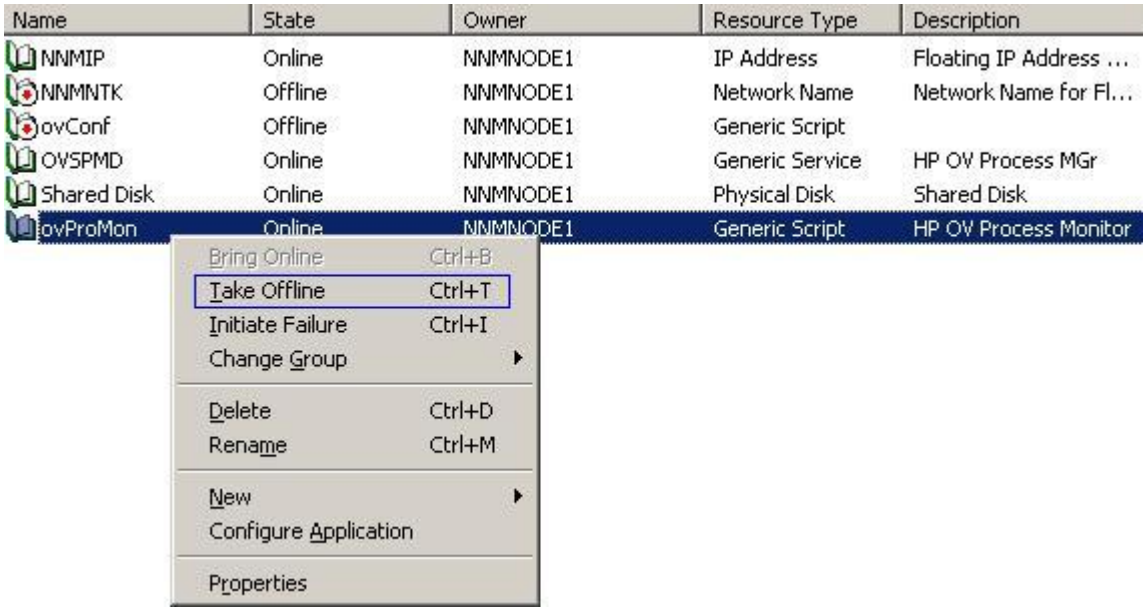
You should access the NNM home base only by using the virtual IP address (xxx.yyy.zzz.www) specified using NNMIP IP Address resource. Alternatively, the network name mapped to the virtual IP Address can also be used to access the home base.

During the failover period, the services may temporarily not be available until all the resources are in the online state for a particular node. (This may last for 70 -80 seconds based on the hardware configurations) In such cases, you may click the **Refresh** button or close the instance of the browser running NNM Home base and open a new instance.

Disabling Monitoring the Health of OV Processes

To disable the monitoring activity of the OV Processes, then take the "ovProMon" resource Offline. This will ensure that the resource no longer participates in the Cluster activity.

Right click the resource and select Take Offline.



5.1 – Figure shows bringing a resource Offline.

Integration of NNM with OVOA

To install OVOA where NNM is installed (Example: To install OVOA on NNMNODE1 and NNMNODE2), there are additional configurations that are required to support the co-existence. Make sure all the Cluster resources are taken Offline and only Shared Disk resource is ONLINE.

For complete details on configuring OVOA to be part of clusters, refer to the OVO server help documentation for the section on **"Cluster support in OVO"**

Configuring opcinfo Configuration File of OVOA

To receive Hardware interrupt traps even when NNM is not running, ensure that the following Variable is included in the opcinfo file of OVOA:

```
SNMP_SESSION_MODE    TRY_BOTH
```

Uninstallation of NNM 7.53 on Cluster Nodes

Uninstalling NNM in Cluster environment involves the pre-uninstallation task to be carried out before proceeding with uninstalling the software
NNM 7.53 uninstallation on a clustered environment involves the following:

1. Log onto NNMNODE1.

2. Ensure that ONLY Shared Disk Resource is owned by NNMNODE1 and all the other resources of NNMCLUSTER group OFFLINE.

3. Using Junction Link Magic Software, (or Other Freeware software) delete the Junction Points created from Shared Disk to the folders in NNMNODE1 of all the NNM Data folders.

4. Now copy all the NNM Data folders (**Refer** Figure 3.1.1) of NNM from Shared Disk onto the Local drive (Eg. C:\Program Files\HP OpenView\)

5. From the Start menu, select Programs → HP OpenView → Network Node Manager Admin → NNM Processes-Stop.

6. When the dialog box confirms that the processes have stopped, from the Start menu select Programs → HP OpenView → Network Node Manager Admin → Uninstall Network Node Manager.

7. If there are any NNM application package programs listed under Add/Remove programs then manually uninstall all the application packages.

8. If the HP OpenView folder is not deleted, then delete the entire folder.

9. Now Log onto NNMNODE2 and perform "Move Group" on NNMCLUSTER group to NNMNODE2 so that ONLY Shared Disk resource is owned by NNMNODE2.

10. Perform Step-3 through Step-8 to complete uninstallation on NNMNODE2

Automating steps prior to Uninstalling NNM using VB Script:

You can use the VB Script **"ClusterConfiguration.vbs"** to automate "step 3 and step 4". But this would require "linkd.exe" to be installed and available. (linkd.exe is a tool to create Junction points in Windows NTFS; this is shipped with Windows Server 2003 Resource Toolkit).

Pre-conditions:

I. Log onto to the Node where NNM is to be uninstalled.

II. Ensure that no OV processes are running by checking that no Cluster resources of NNM cluster Group is "ONLINE".

III. Take only the Shared Disk resource Online and the owner being the Node presently logged in.

Execute the script from command line using the following command:

```
cscript.exe <Path to the VB Script File>\ ClusterConfiguration.vbs
```

Bibliography

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