



Connect:Direct for Windows 4.4 Cluster Installation Guide

Cluster Service for Windows

03 September 2009

Document Version 3.1

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1 About this Document

This document describes one way in which Connect:Direct for Windows can be installed to run under the Microsoft Cluster Service.

2 Keywords

Cluster

A Windows **cluster** consists of two or more servers grouped together in order to implement fail-over/fail-back procedures for applications, services, etc.

Server

A **server** in this context, is a machine utilizing a server OS such as Microsoft Windows Server 2003 with a specified machine name.

Node

A **node** in this context, is a Connect:Direct installation that contains a user specified name that can match the server name but, does not necessarily.

Cluster IP address

A **cluster IP address** is an address assigned to the entire cluster as opposed to a specific machine. This is very important as Connect:Direct will be utilizing this address and not the specific machine address.

Quorum Disk

A disk containing grouped resources and MSCS configurations.

Cluster Drives

A **cluster drive** is a logical drive specification assigned to a quorum device.

MSCS

Stands for **Microsoft Cluster Service** and names Microsoft's software package needed to set up and manage a cluster.

3 Equipment

The install for Connect:Direct for Windows was verified on a two-server cluster utilizing the following specifications:

Software Specifications

- Windows Server 2003 SP2 and Windows Server 2008 SP2
- Microsoft Clustering Services
- Certified level of MDAC
- Connect:Direct for Windows 4.4.00

See the *Connect:Direct for Windows 4.4.00 on Windows Server 2008* whitepaper for more details on the deployment of Connect:Direct for Windows on Windows Server 2008. The whitepaper is available from the Customer Center website at <https://customer.sterlingcommerce.com>.

Hardware Specifications

- Windows Server 2003 Cluster
 - Compaq ProLiant DL380 G2 Server with dual Pentium III 1.4 GHz. processors, 2 GB RAM
 - Dual HP NC3163 Fast Ethernet 10/100 NIC
 - Smart Array 5i Plus Controller.
- Windows Server 2008 Cluster
 - HP ProLiant BL460c G1 Server with dual Xeon 3.16 GHz processors, 4 GB RAM.
 - Dual HP NC373i Gigabit Ethernet NIC.
 - Smart Array E200i Controller.

Please note that any Microsoft verified hardware for clustering can be used:

<http://www.microsoft.com/whdc/hcl>

4 Connect:Direct for Windows Resources

The Connect:Direct for Windows node relies on a number of resources. These are in general needed by the Connect:Direct service and are not specific to clustering.

- Installation directory
- Certified level of MDAC drivers
- ODBC data source names, i.e. (TCQ, STATISTICS) and MESSAGES
- Registry tree with the node's configuration
- A unique Connect:Direct node name
- An IP address or hostname

Each of these resources will need to be installed(**I**), shared(**S**) or replicated(**R**). The following describes these components and their related attributes:

- A common point of installation for the binaries, e.g. the quorum drive or a shared storage device dedicated to the cluster **I, S**
- Same level of MDAC drivers on all cluster servers. **I**
- Data source names are common on all cluster servers. **I**
- Common database. **I, S**
- Connect:Direct for Windows registry tree is the same on all systems. **I, R**
- Node name is represented by the cluster and not the machine, i.e. is the same node name on all Connect:Direct for Windows node installations. **I, R**
- The virtual IP address is used on all Connect:Direct node installations. **I, R**

5 Preparing the Installation

Make sure the Microsoft Cluster Service is installed and configured properly. See Microsoft's cluster step-by-step installation guide for cluster installation, for example at <http://www.microsoft.com/windowsserver2003/enterprise/clustering.mspix>

Gather the following information before the installation:

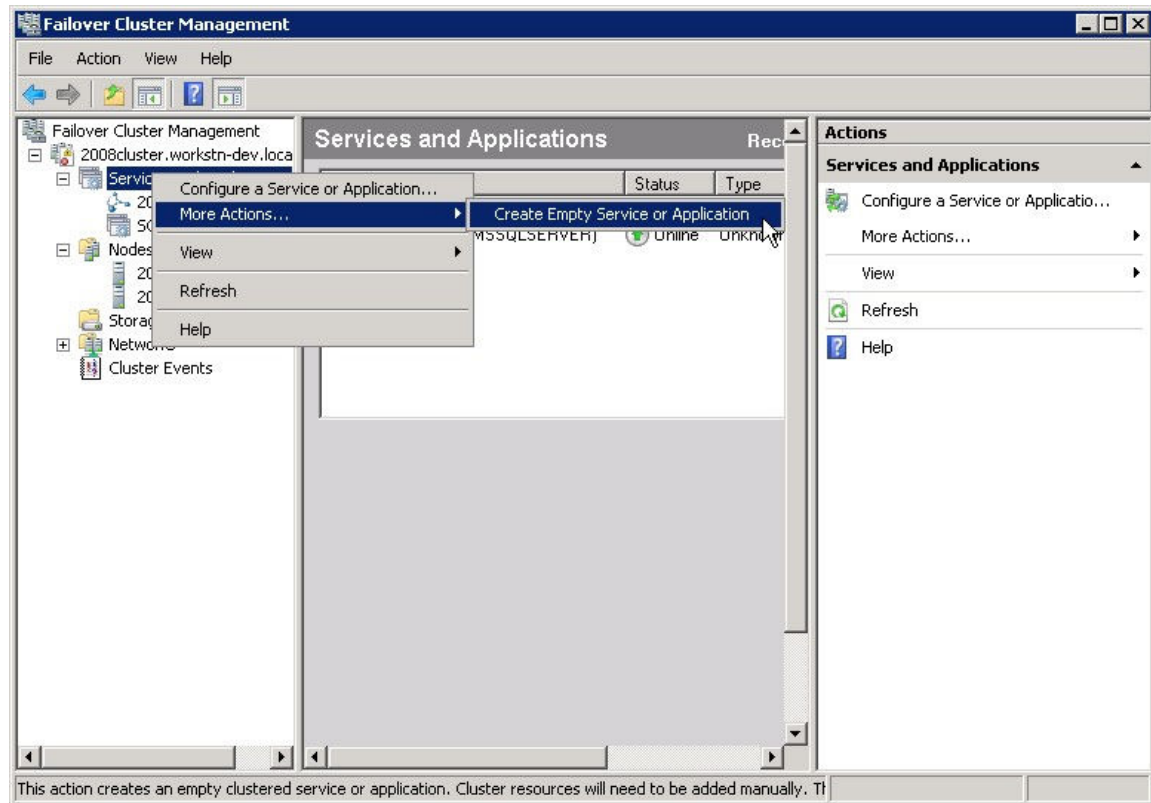
- The virtual IP address of the cluster.
The Connect:Direct for Windows Server will be configured to use this network address for incoming and outgoing communications.
- A shared disk location.
IMPORTANT: the Connect:Direct for Windows Server must be installed to the same physical location for all nodes in the cluster. This can be the quorum drive or a dedicated shared storage device. The path must be consistent among all cluster node installs. Do NOT install to a local non-shared disk of each cluster node.

The Microsoft Cluster Management software is different in Windows Server 2003 and Windows Server 2008. The later platform requires some pre-configuration in the Failover Cluster Management console before Connect:Direct for Windows can be installed to the cluster.

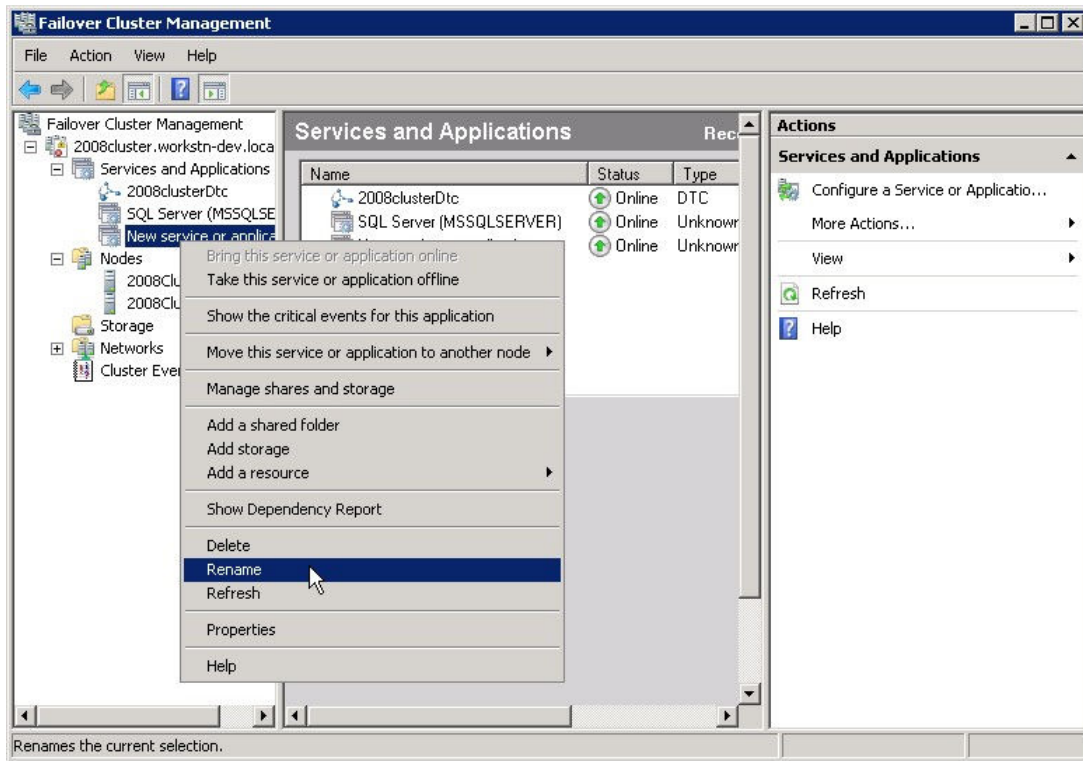
5.1 Preparing Windows Server 2008

Start the **Failover Cluster Management** console.

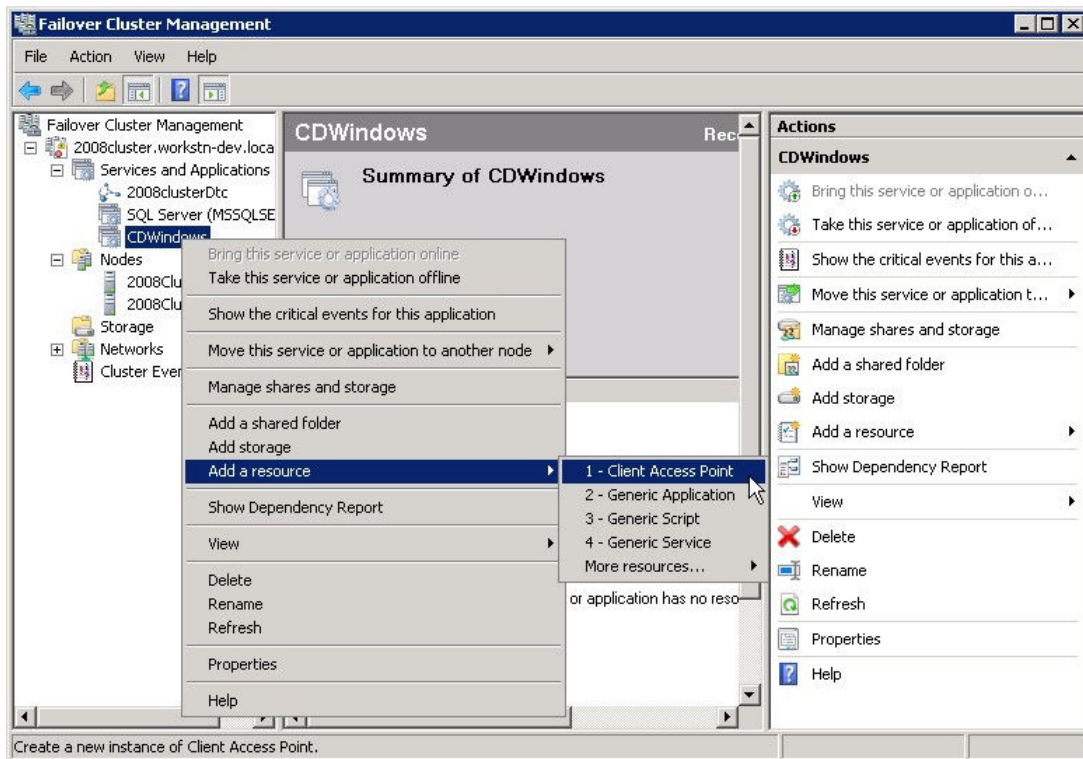
- To create a new service group under "Services and Applications", select "Create Empty Service or Application".



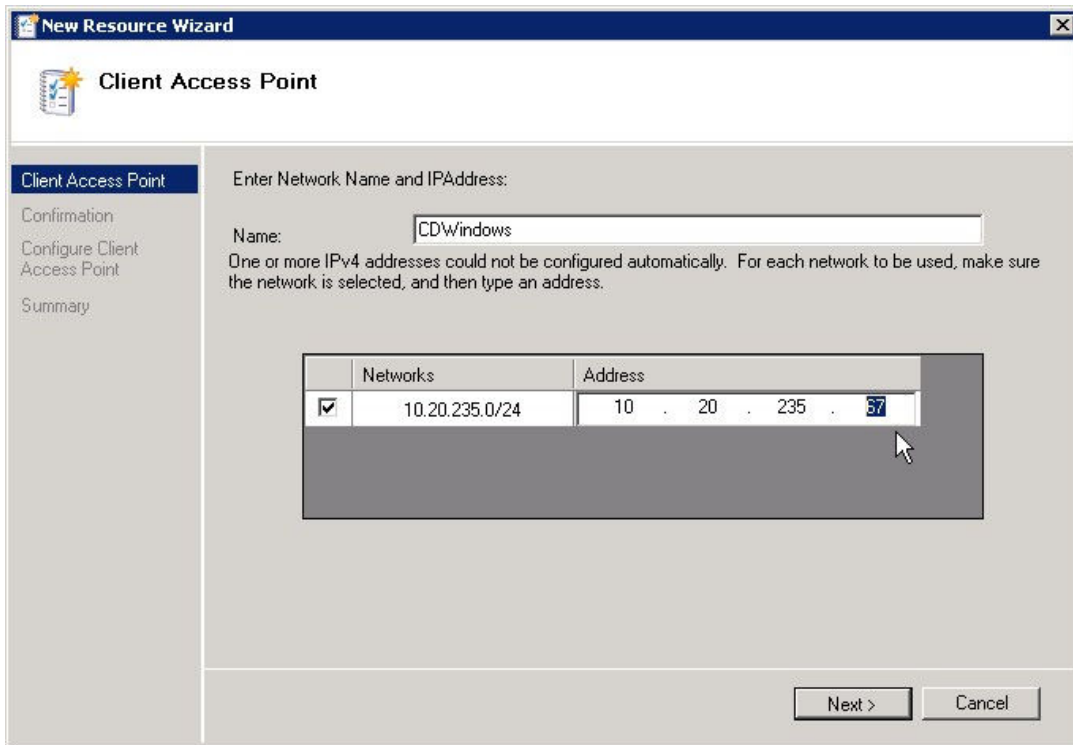
Rename the new entry to “CDWindows”.



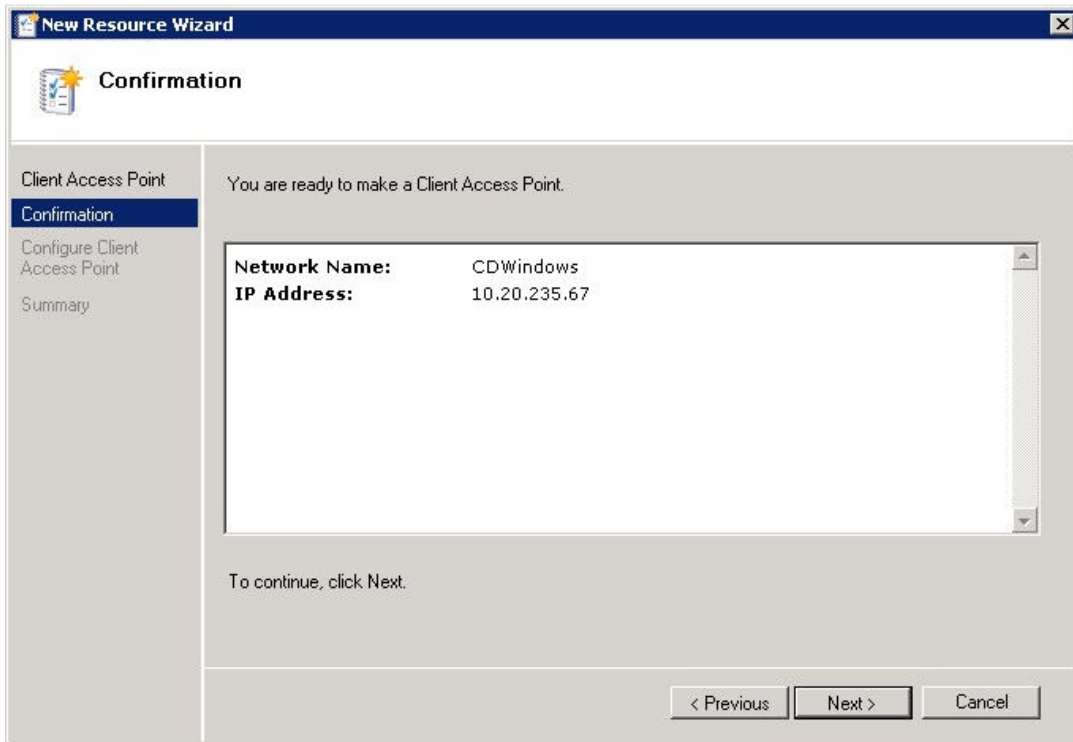
- To setup the virtual IP address for this new “CDWindows” service group, add a new “1 – Client Access Point” resource.



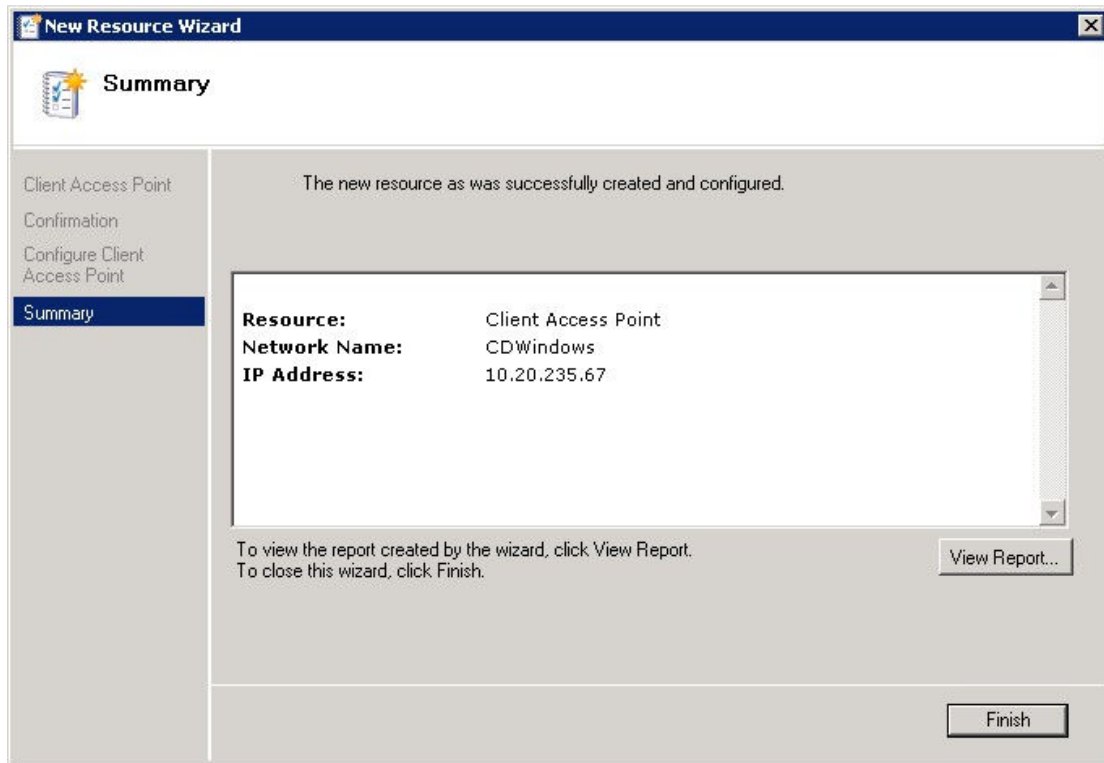
The “New Resource Wizard” will appear. Enter a valid IP address for your Connect:Direct for Windows node within the cluster. This will be the virtual cluster IP address that Connect:Direct for Windows will be configured later on to use for incoming and outgoing communications.



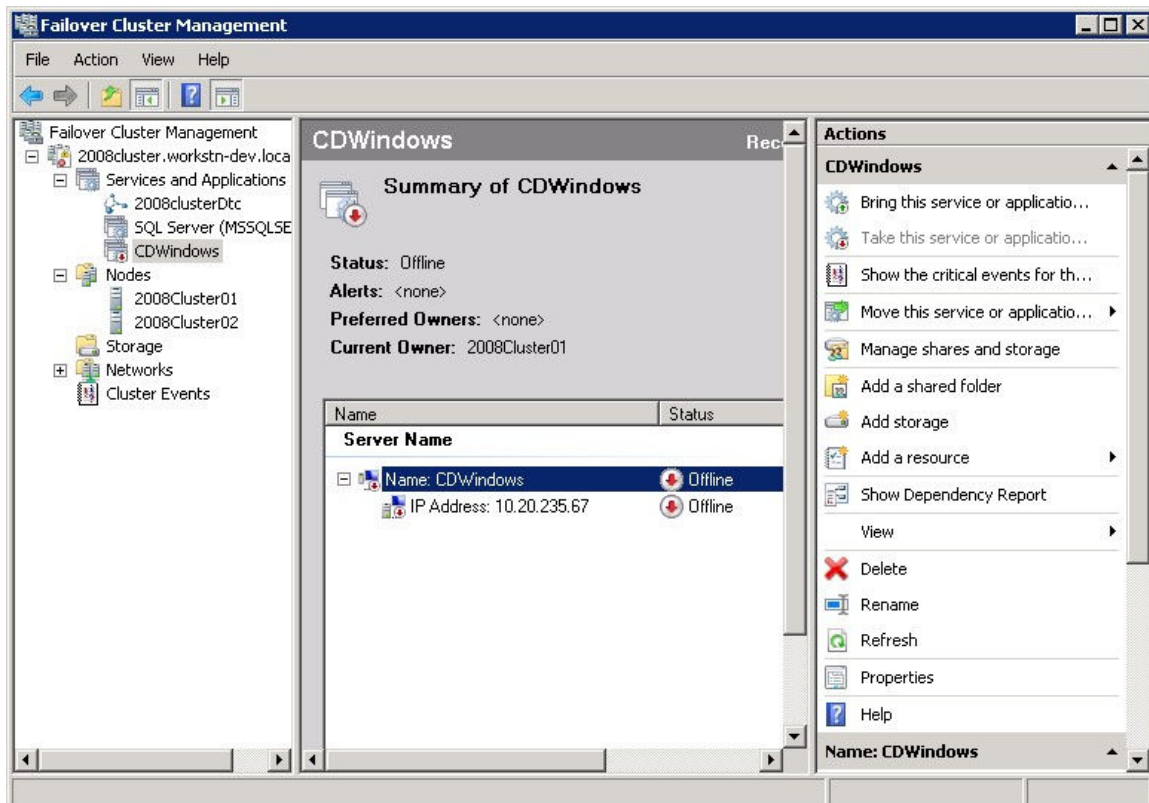
The IP address is validated and the “Confirmation” window appears.



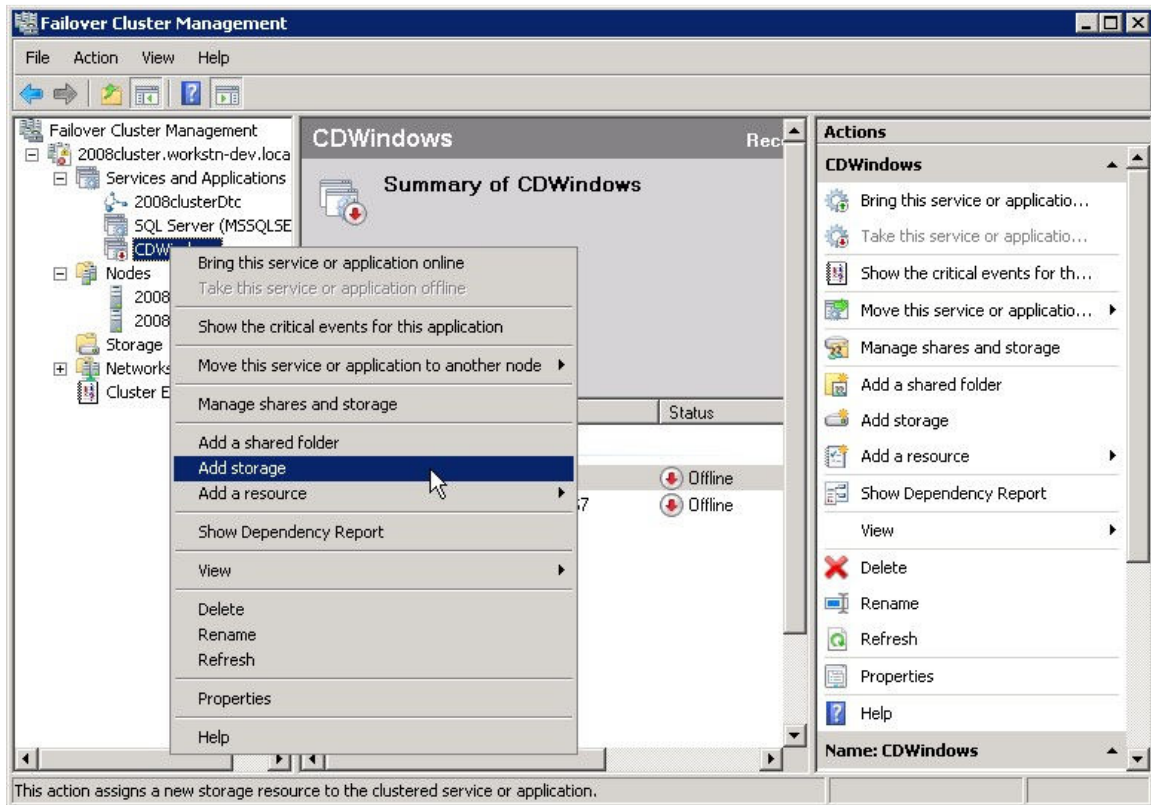
The network is configured and a “Summary” is displayed.



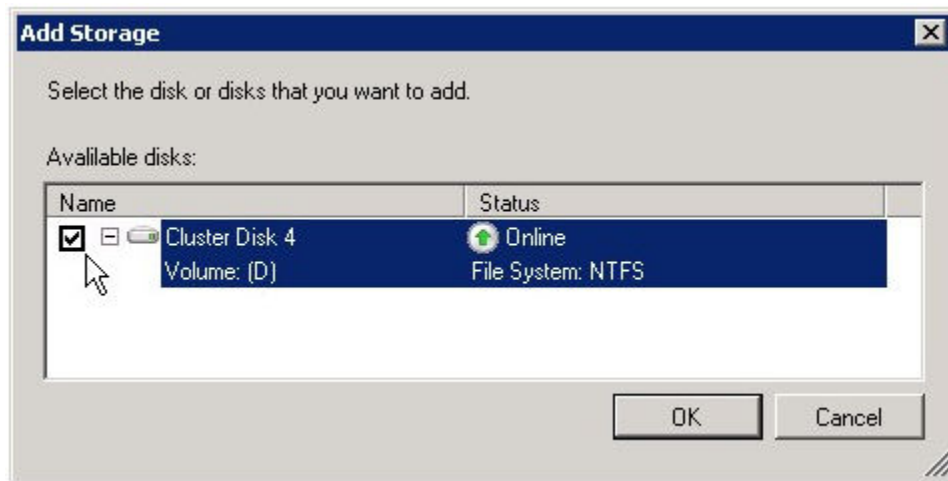
Click “Finish” to complete the wizard.



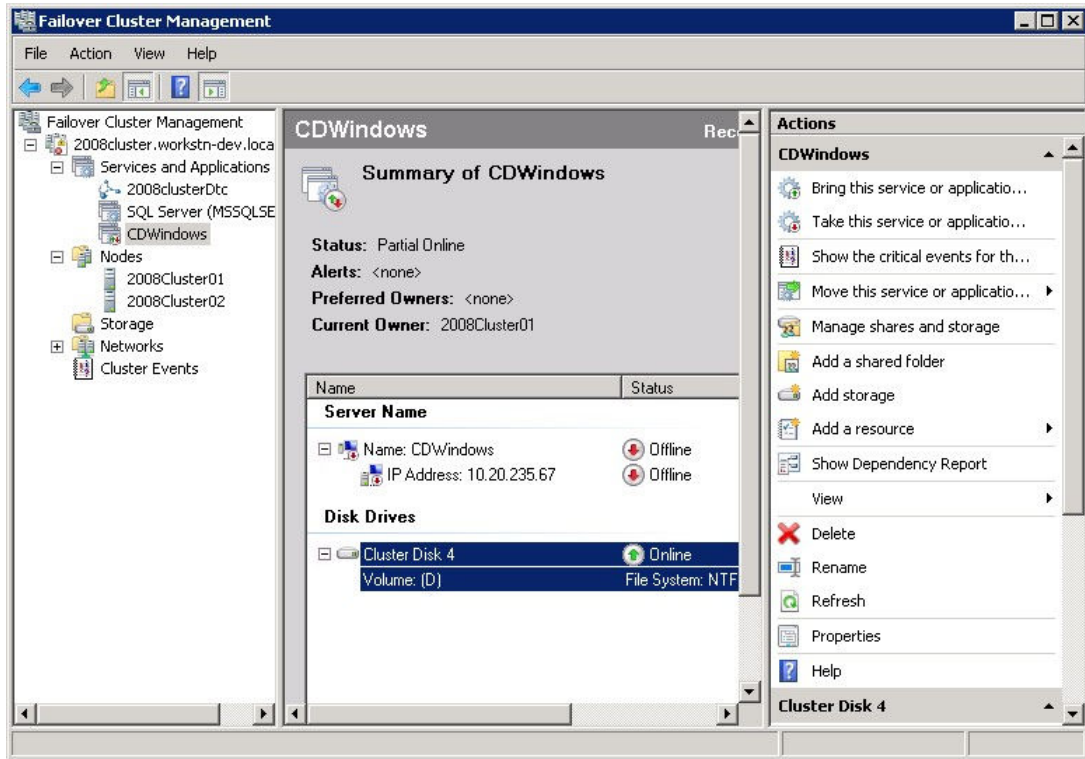
- To assign a shared disk location to the “CDWindows” service group, select “Add storage”.



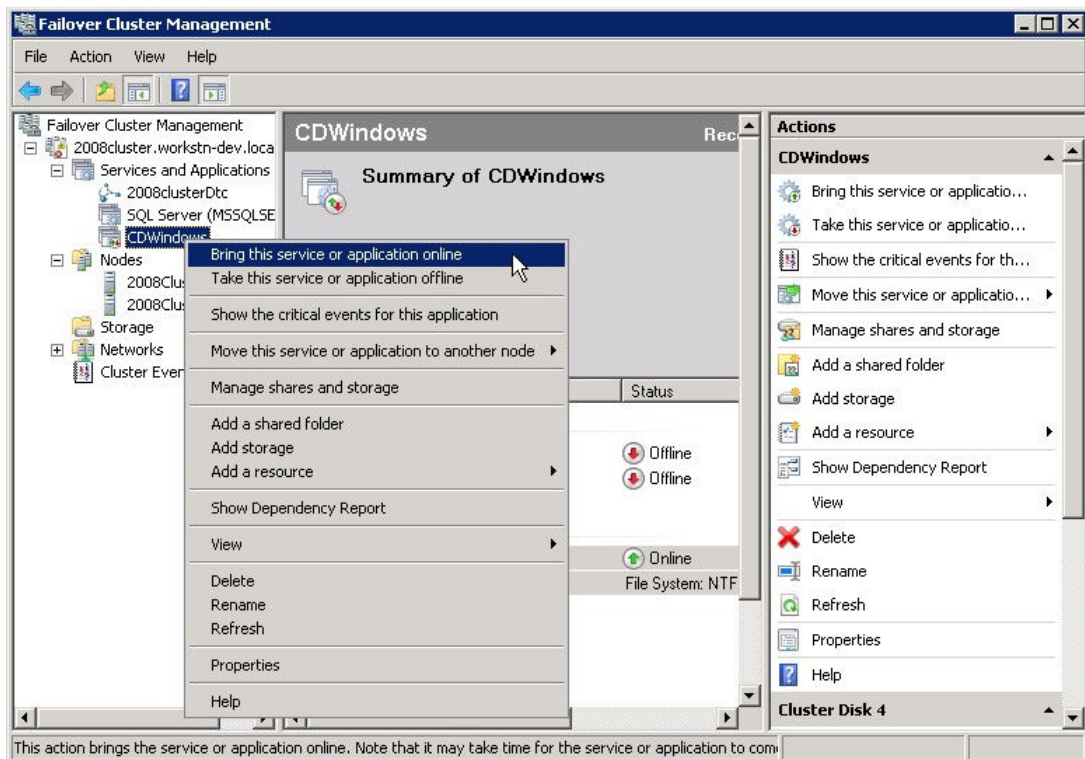
Select an available disk you want to use for the installation.



Click “OK” to complete adding the storage.



- Bring the “CDWindows” service group online on the initial cluster server, so that the virtual IP address and the shared disk resources are available for the installation.



6 Installing Connect:Direct for Windows in a Cluster

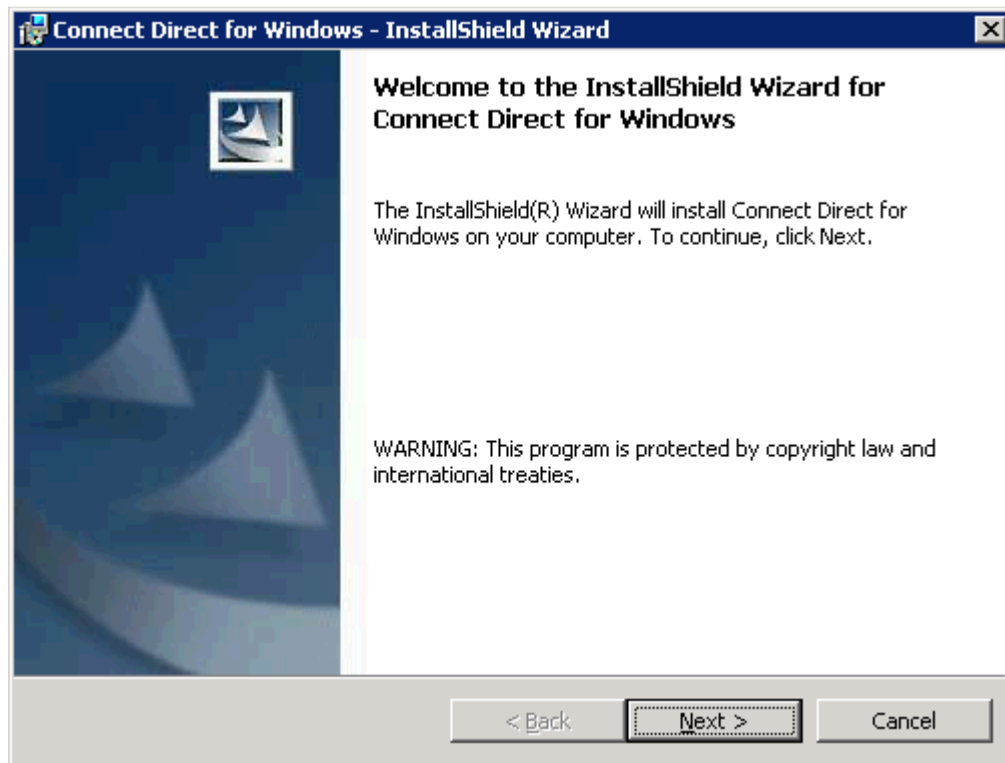
To successfully install the Connect:Direct for Windows service in a cluster environment please follow these step-by-step procedures.

The screenshots below illustrate the Connect:Direct for Windows 4.4.00 installation on a Windows Server 2003 cluster using the shared disk "Q". The Connect:Direct for Windows installation on Windows Server 2008 looks exactly the same.

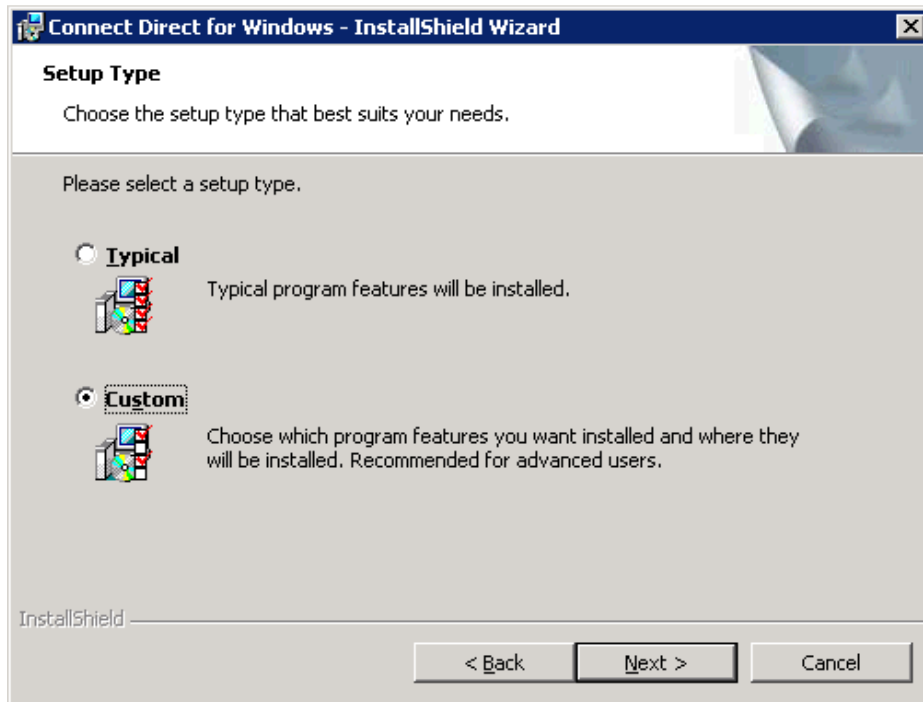
6.1 First Cluster Node

- Make the initial cluster node the active node and make sure it has access to all resources, i.e. the shared disk and the cluster's IP address. This is in essence the first machine added to the cluster.
- Install Connect:Direct for Windows to the shared disk in the cluster.
See Connect:Direct for Windows installation guide for details.
Windows Server 2008: Use the "Run As Administrator" (RAA) feature to launch the installation.

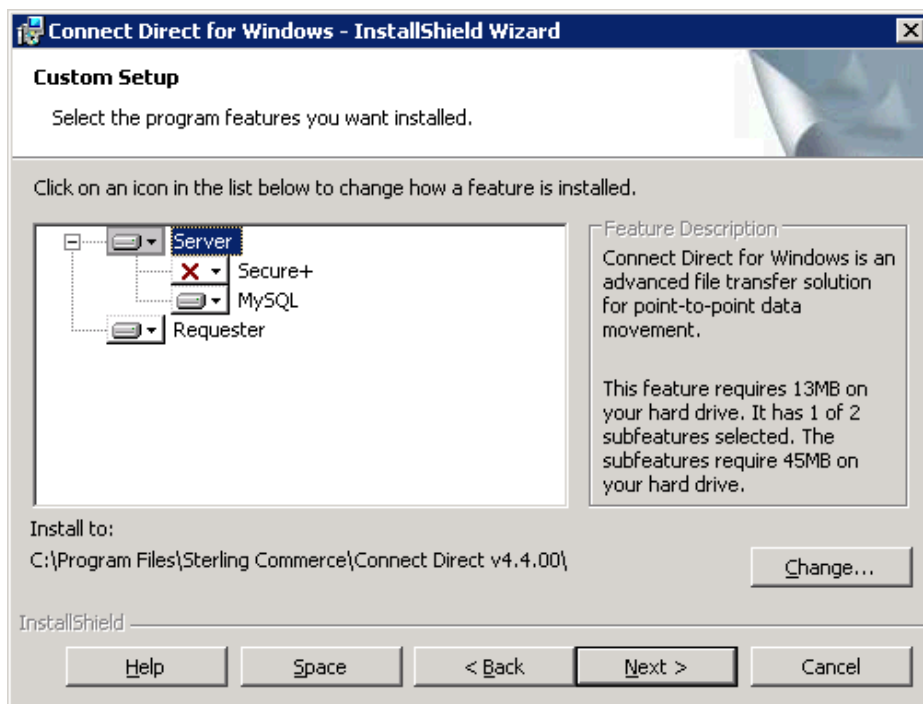
Welcome Screen:



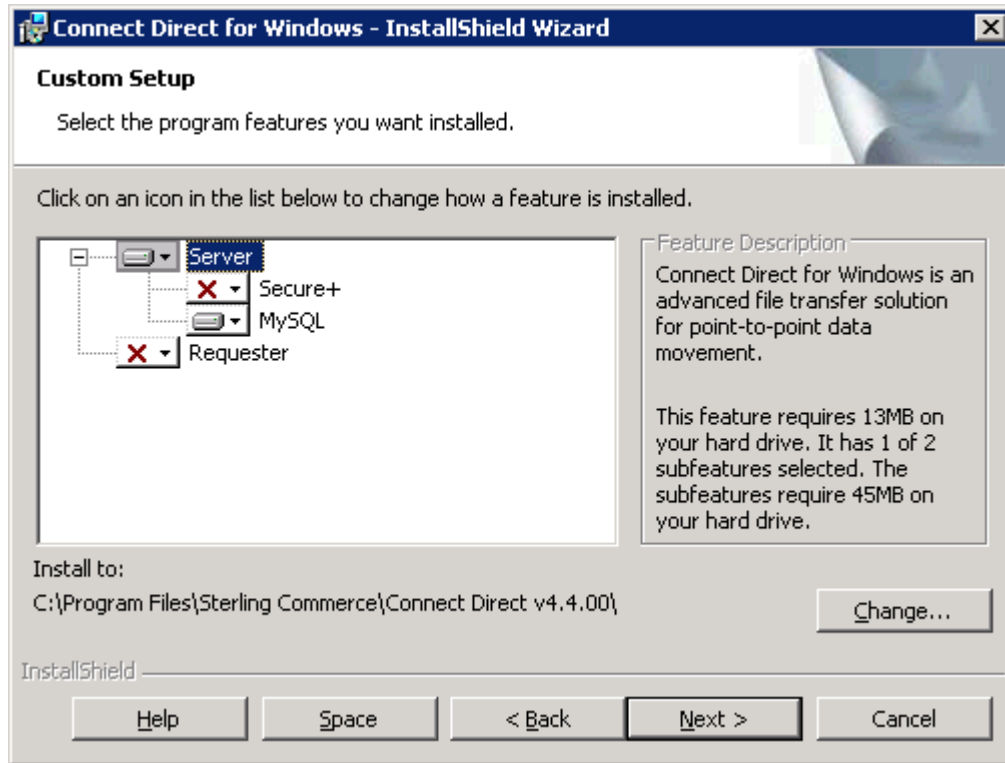
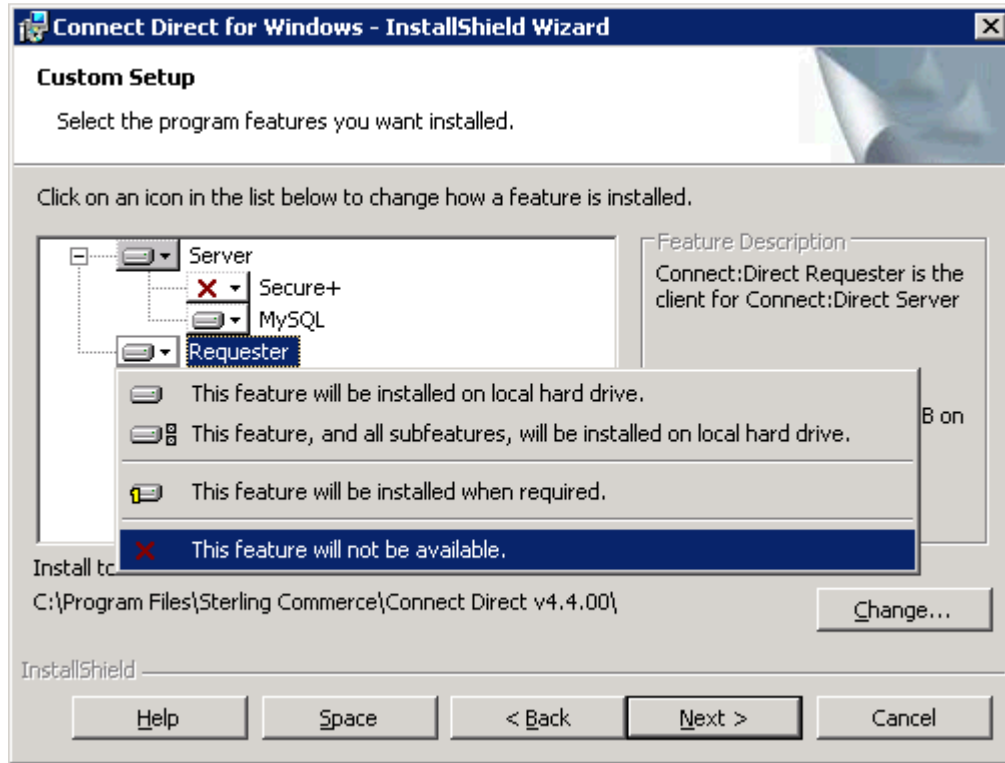
Select the "Custom" install.



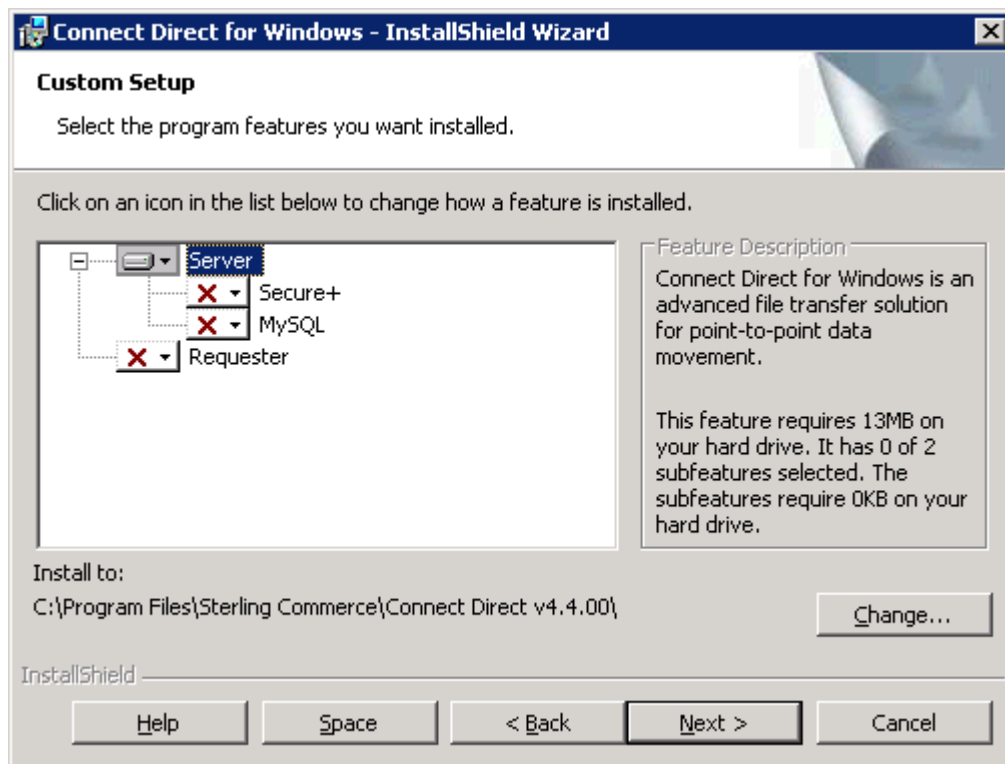
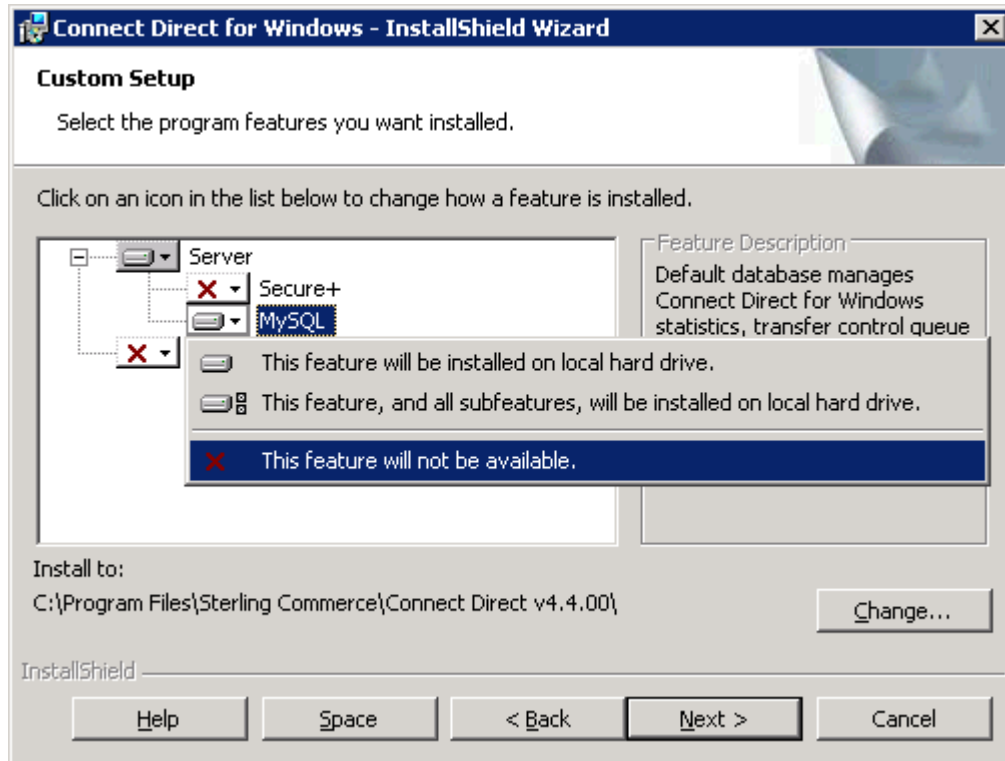
IMPORTANT: Deselect the Requester feature. If the Requester is installed to the cluster it will only be available on the active cluster node. Install the Requester on another machine on the network using this installation package, or install the Requester using the "Connect:Direct for Windows - Stand Alone Requester" installation package to the desired cluster machine after the Connect:Direct for Windows server has been installed.



Deselect the Requester feature.

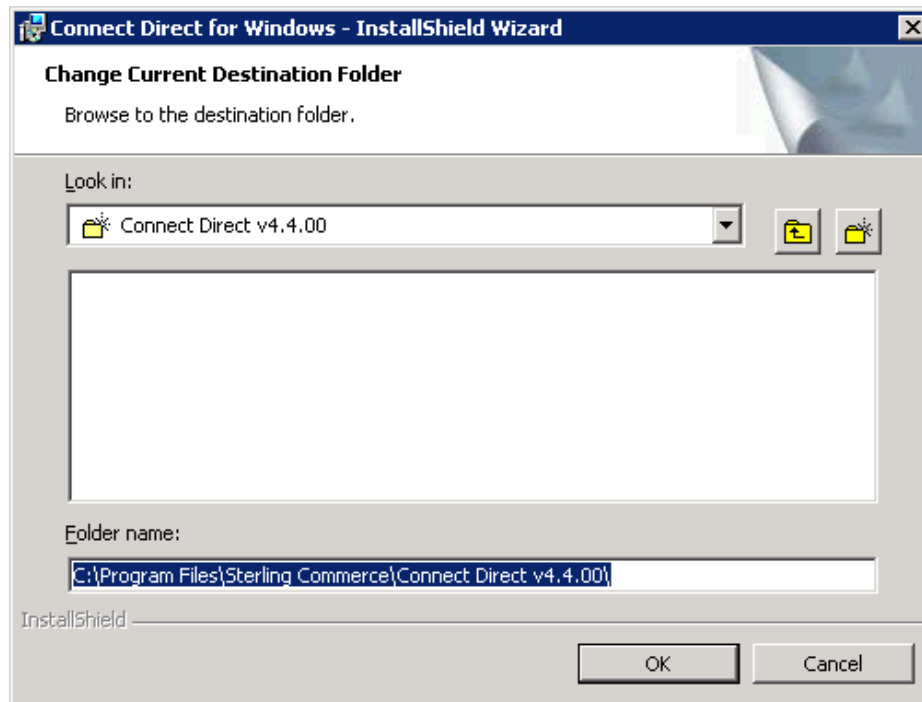


If you will be using Microsoft's SQL Server as the database for Connect:Direct, deselect the MySQL feature.

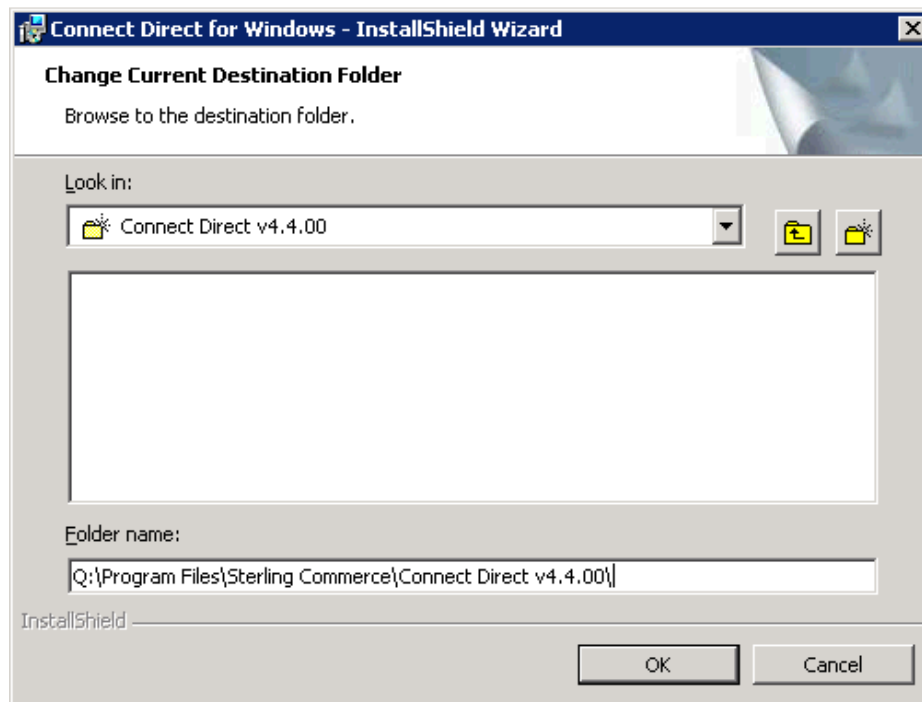


IMPORTANT: The Connect:Direct for Windows Server must be installed to the same physical location for all nodes in the cluster. This can be the quorum drive, a shared storage device, etc. The path must be consistent among all cluster node installs.

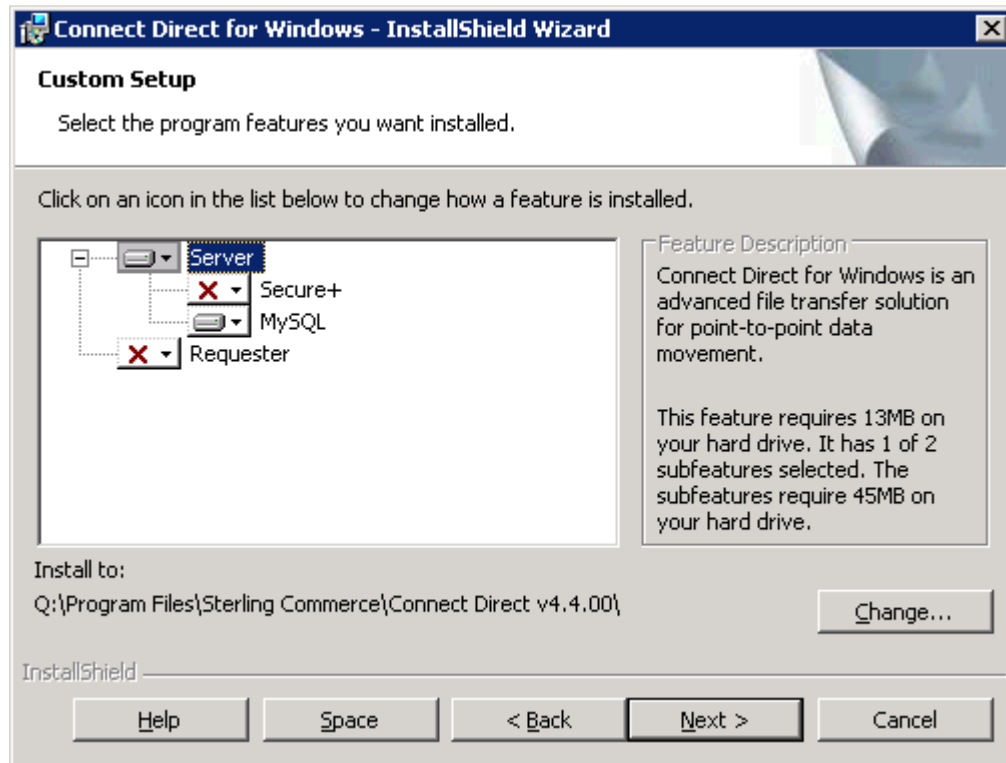
Select the “Change...” button to change the installation location.



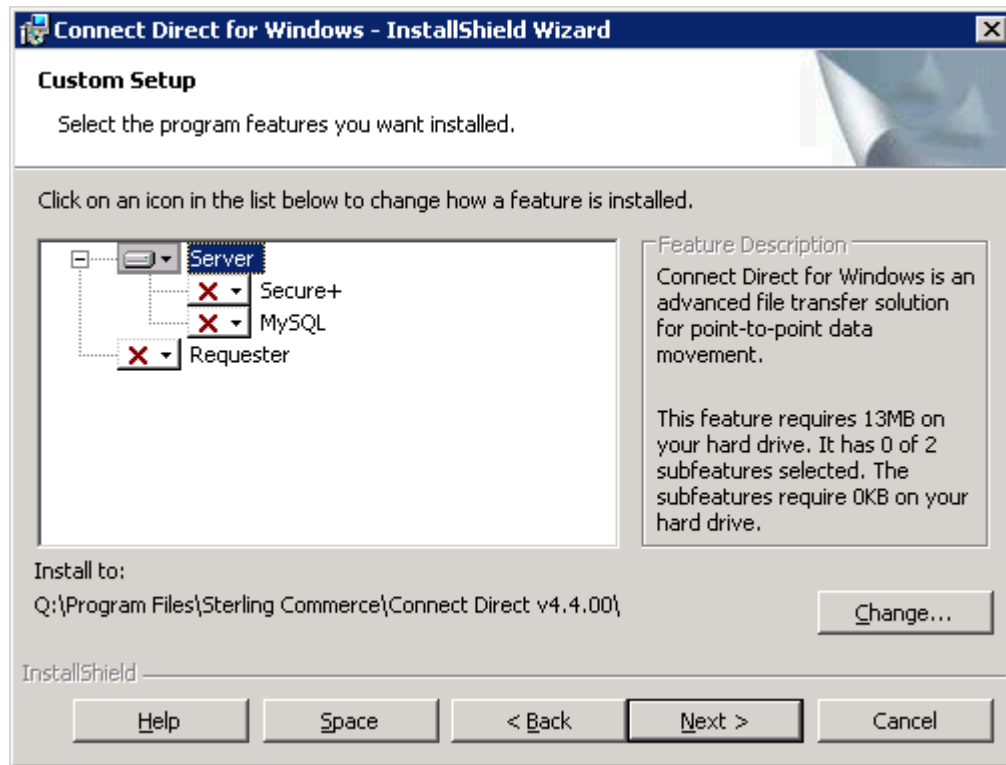
Change the installation location to use the shared disk.



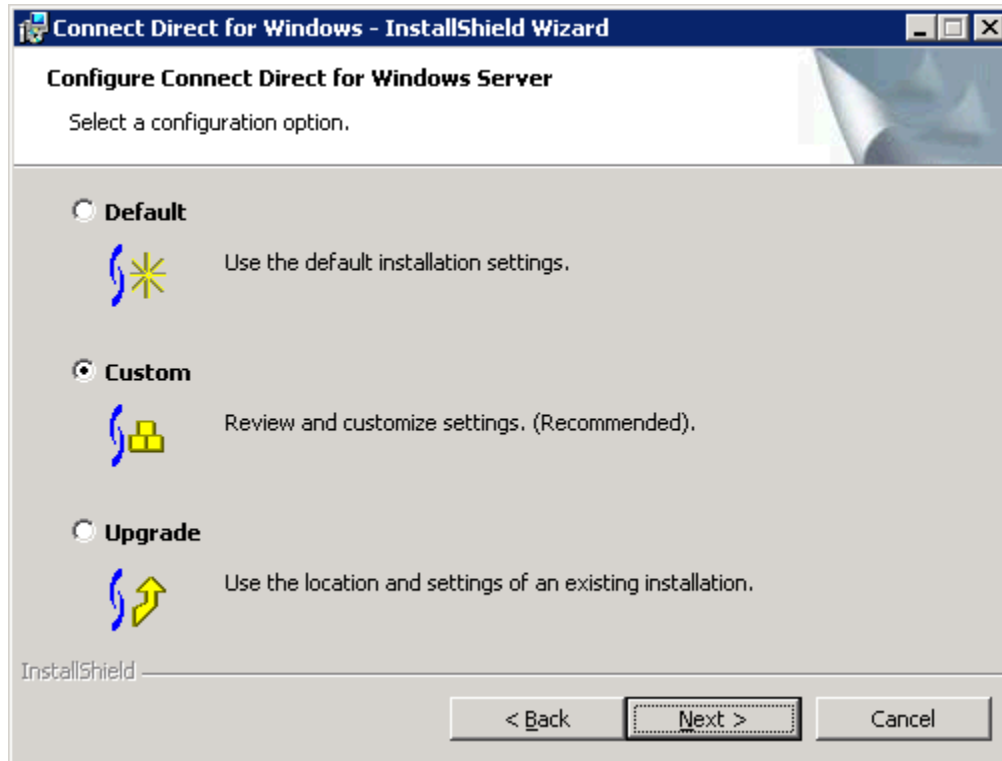
If you are using MySQL, you should have something like this.



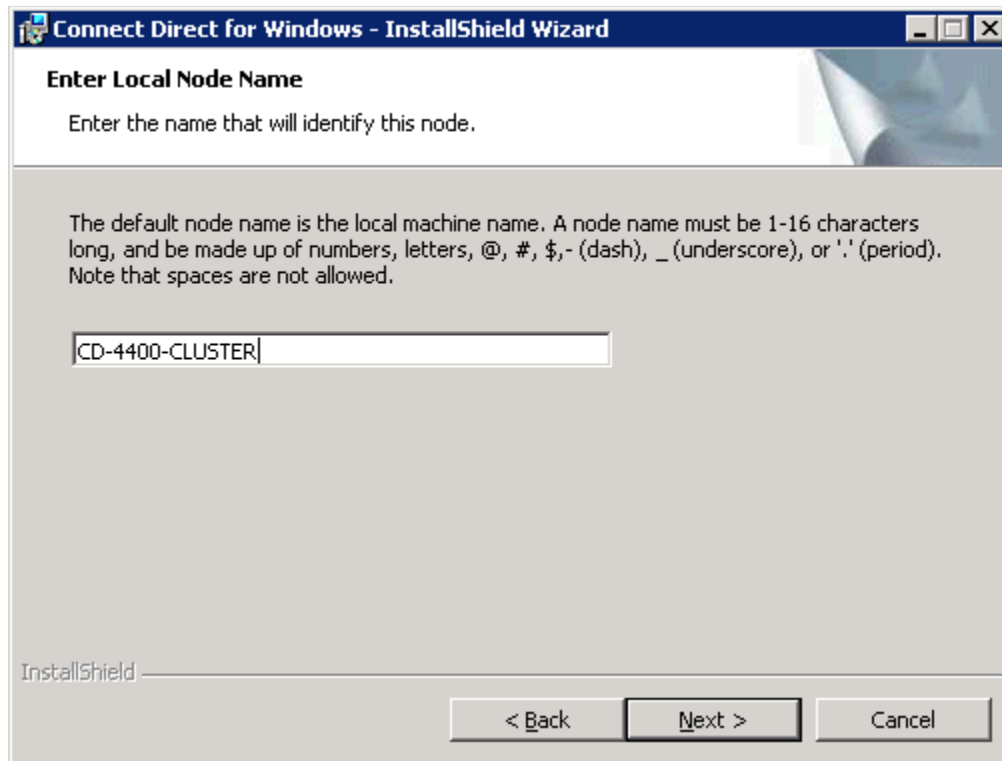
If you are using Microsoft's SQL Server, you should have something like this.



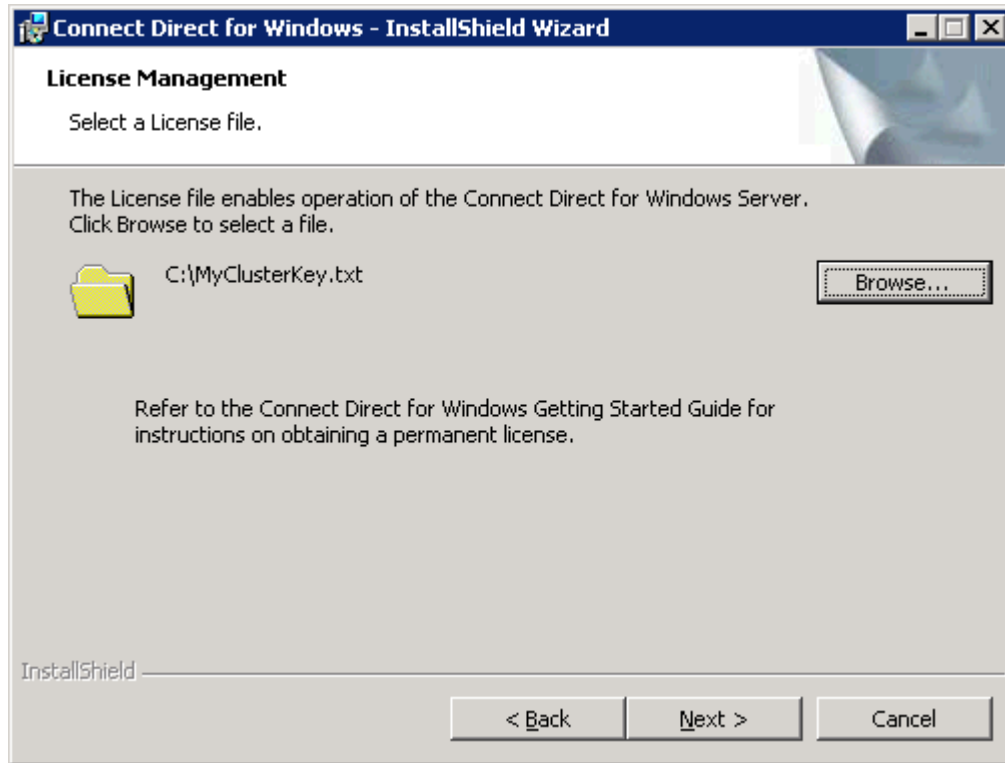
Select Custom install so that we can define the Connect:Direct Node Name. This step is required so the Connect:Direct Node Name can be defined the same across all Cluster nodes.



Define the Connect:Direct Node Name, this must be the same for all installs in the Cluster.

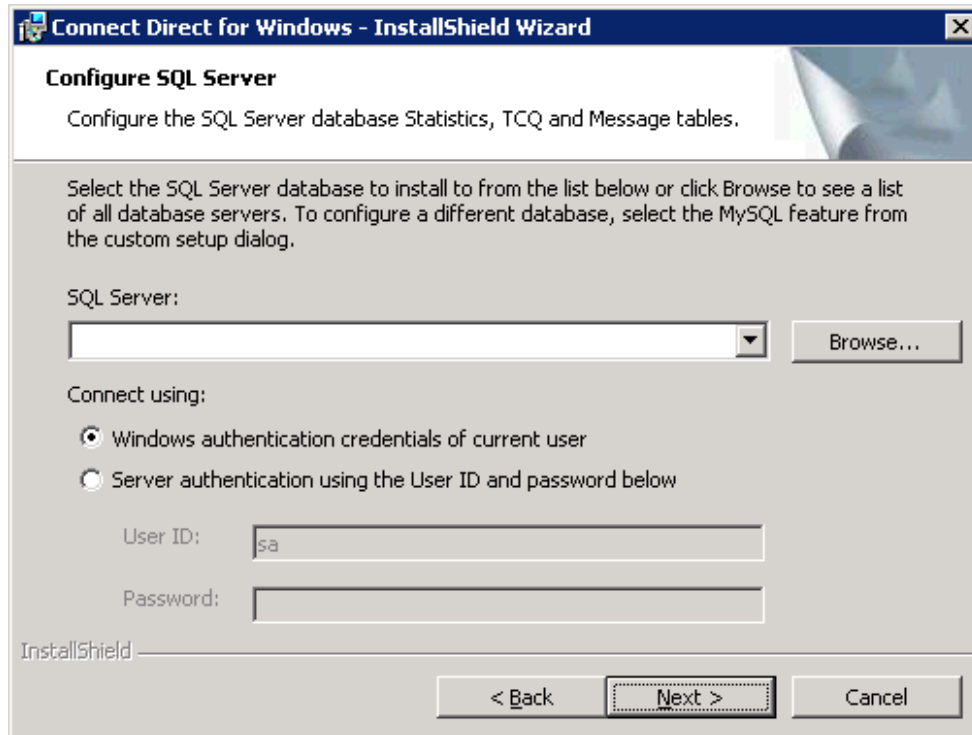


Select the Connect:Direct License Key file. The License key file for a Cluster is a special License Key and must have all Cluster Nodes defined in the license.

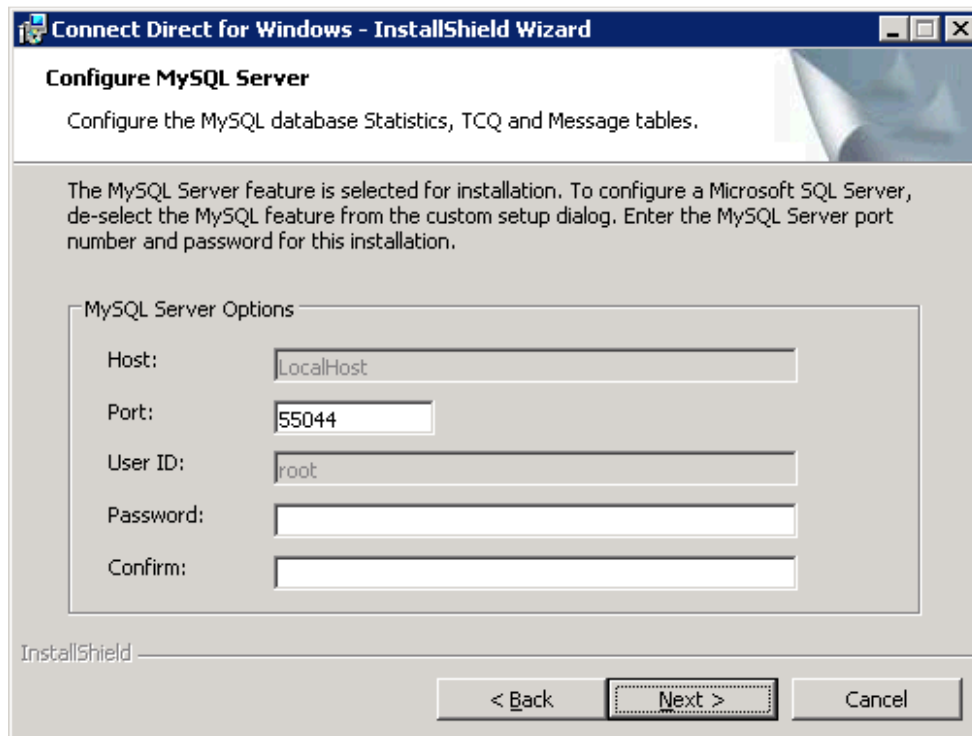


Each install of Connect:Direct for Windows must point to the same Database location. You will need to define the same database, user id, and password for all installs.

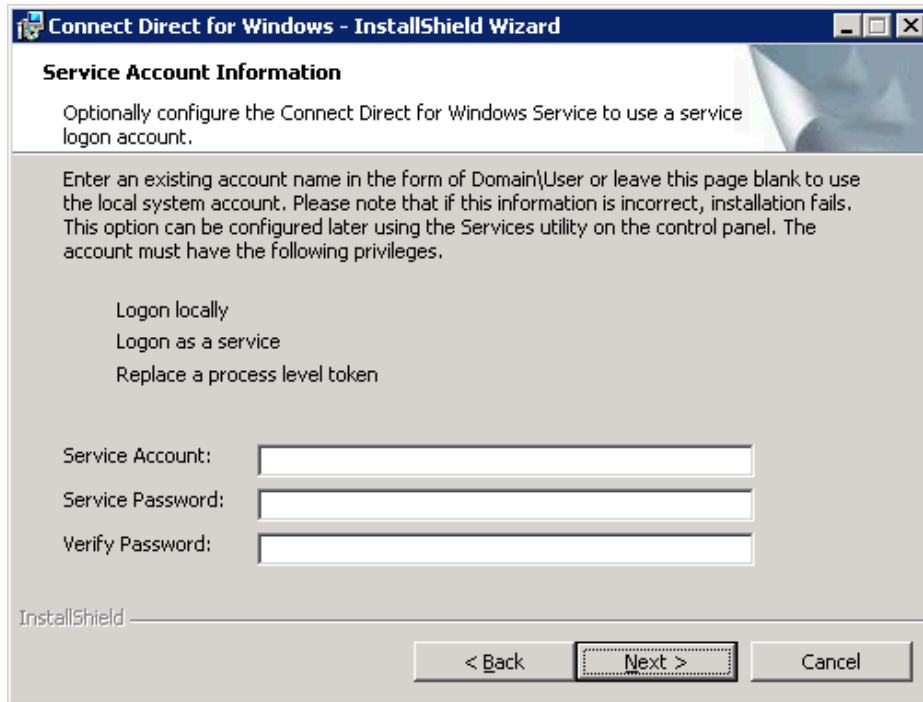
If using Microsoft's SQL Server...



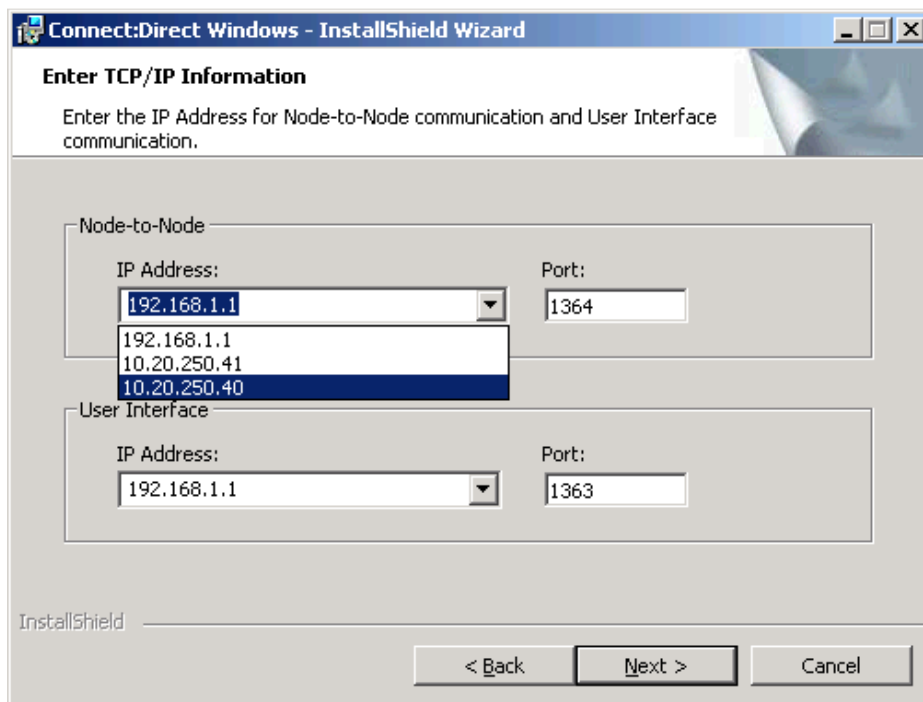
If using MySQL...



No changes necessary here, however if you wish to run the Connect:Direct service under a special account, configure it here.



Use the drop down list to select the Cluster's Virtual IP Address (or manually enter the address) to be used by Connect:Direct for both the Node-to-Node IP Address as well as the User Interface IP Address. On Windows Server 2008 this is the IP address that was configured in the Client Access Point.



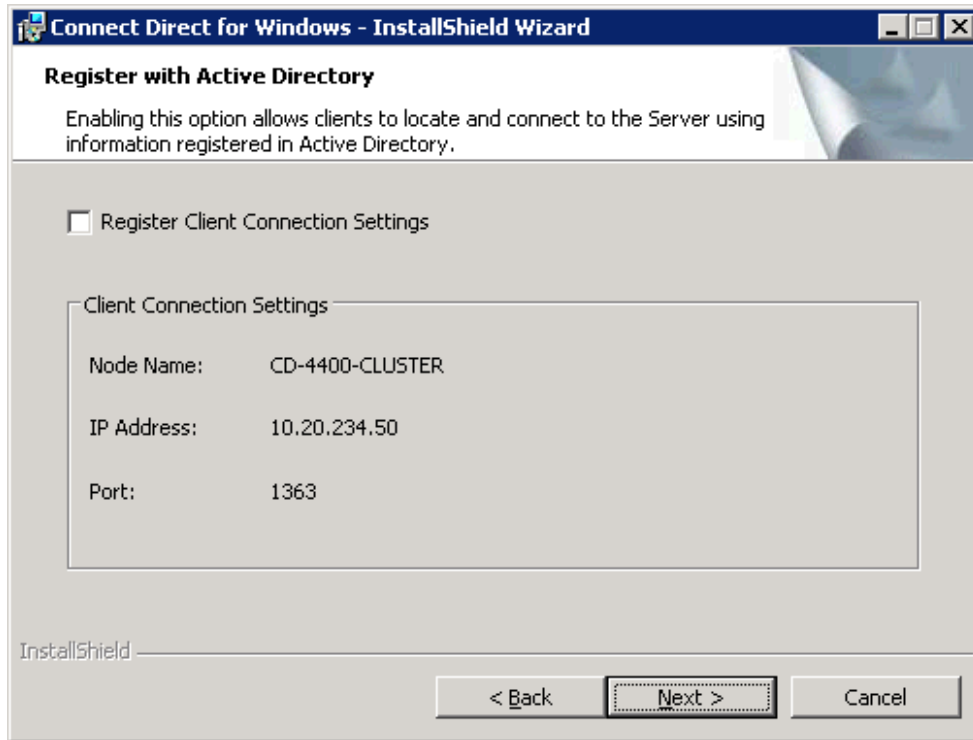
Ensure that the IP Address specified is the Cluster's Virtual IP Address.

The screenshot shows a Windows dialog box titled "Connect:Direct Windows - InstallShield Wizard". The main heading is "Enter TCP/IP Information". Below the heading is a sub-heading: "Enter the IP Address for Node-to-Node communication and User Interface communication." The dialog is divided into two sections: "Node-to-Node" and "User Interface". Each section has two input fields: "IP Address:" and "Port:". In the "Node-to-Node" section, the IP Address is "10.20.250.40" and the Port is "1364". In the "User Interface" section, the IP Address is "10.20.250.40" and the Port is "1363". At the bottom of the dialog, there are three buttons: "< Back", "Next >", and "Cancel". The "Next >" button is highlighted with a dashed border.

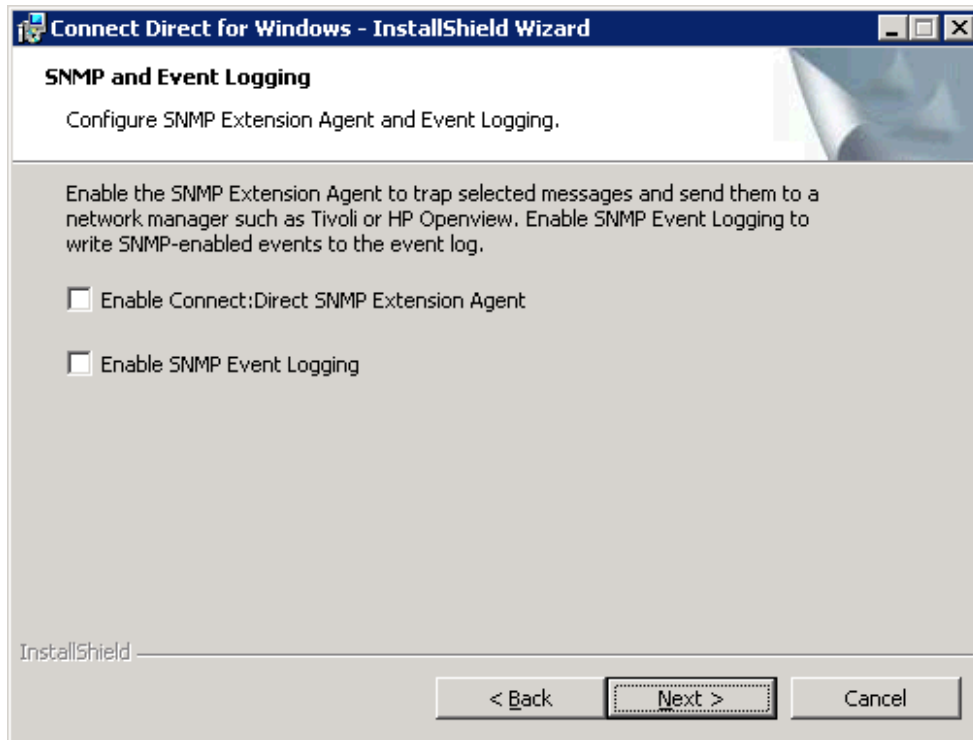
The SNA Option is not available when installing to a Cluster.

The screenshot shows a Windows dialog box titled "Connect Direct for Windows - InstallShield Wizard". The main heading is "Enter SNA Information". Below the heading is a sub-heading: "Optionally configure SNA connectivity." There is a checkbox labeled "Configure SNA" which is currently unchecked. Below this is a section titled "SNA Settings" containing three input fields: "Local LU Name:" with the value "LABSCLUS", "Network Name (NET ID):" which is empty, and "APPC Mode Name:" with the value "NDM624K". At the bottom of the dialog, there are three buttons: "< Back", "Next >", and "Cancel". The "Next >" button is highlighted with a dashed border.

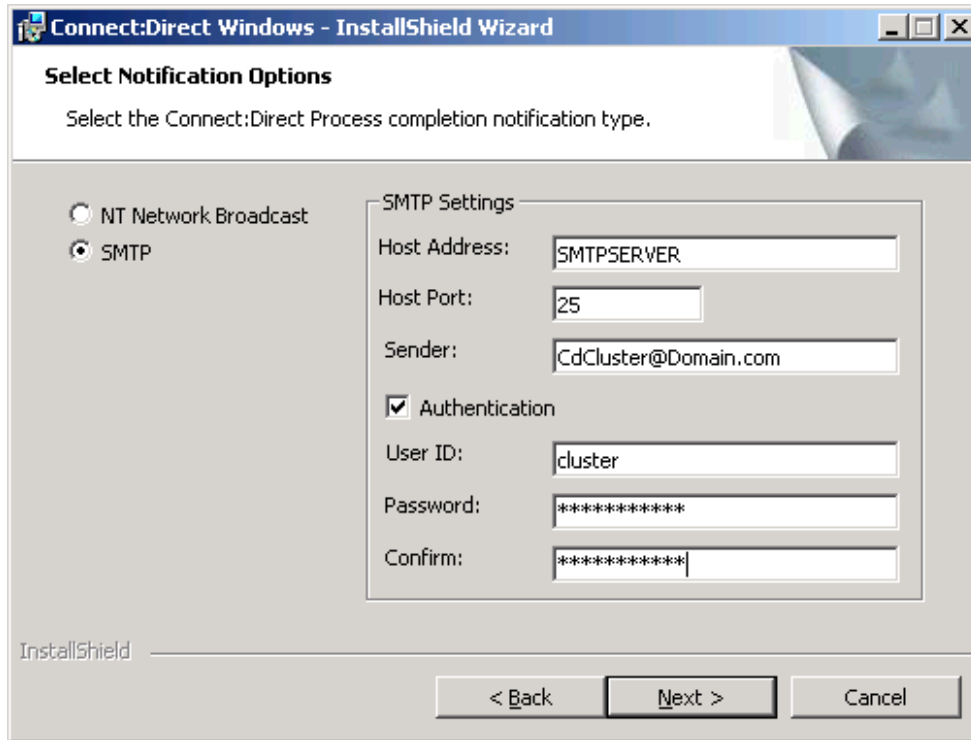
See the Connect:Direct for Windows documentation for details about registering to the Active Directory.



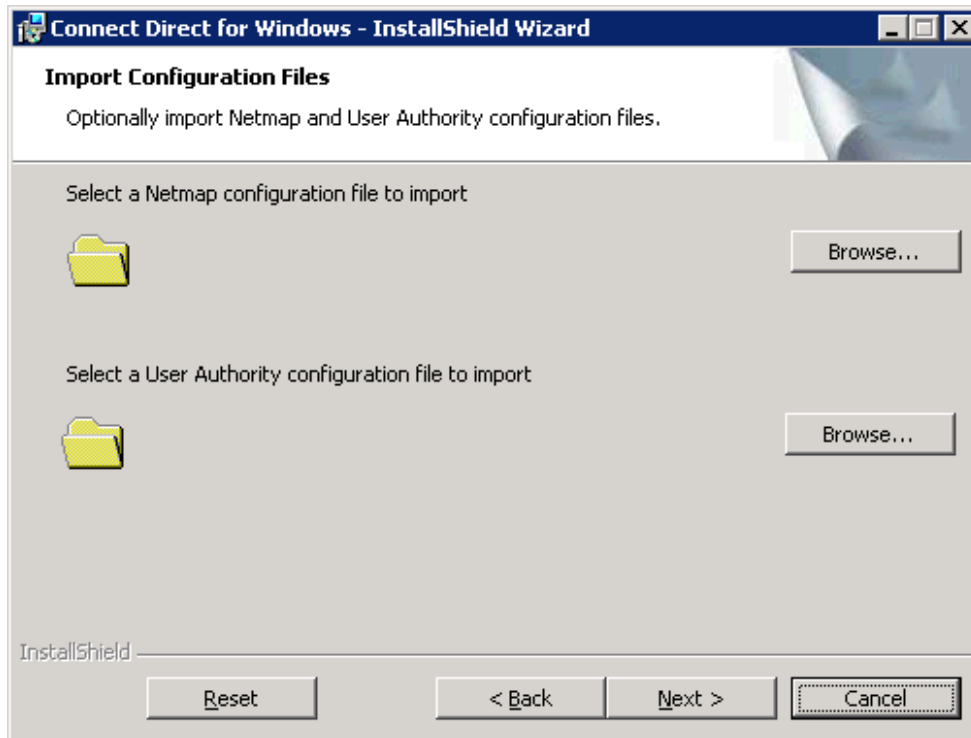
Check the boxes desired to enable SNMP functionality. See the Connect:Direct for Windows documentation for details about SNMP functionality.



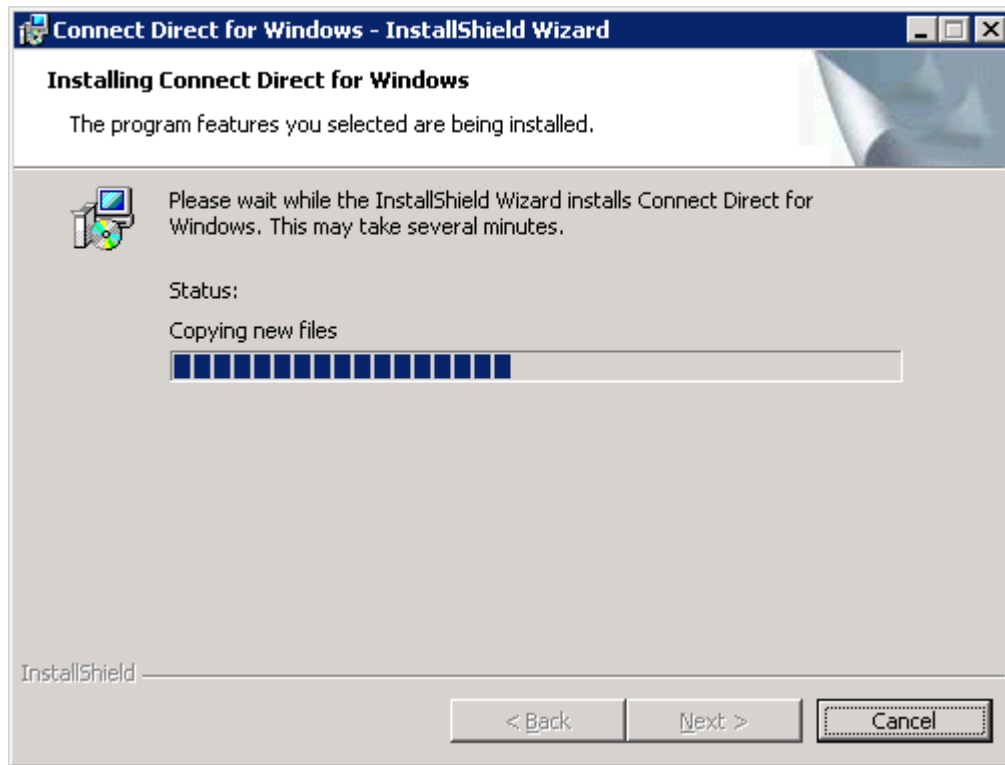
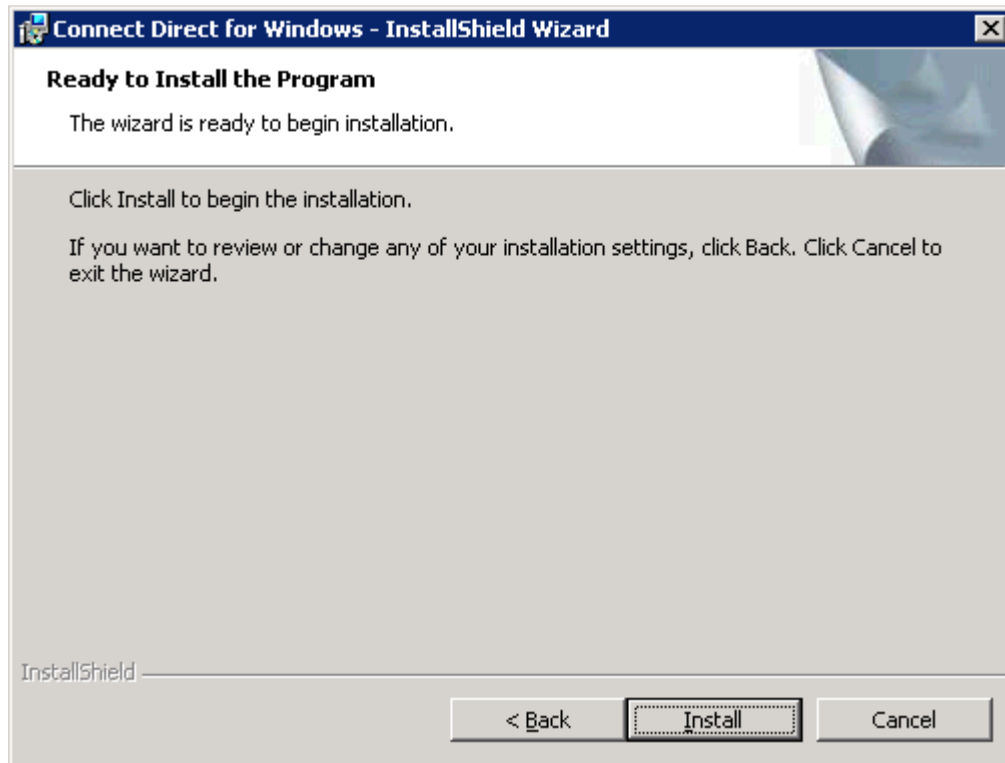
Select the desired notification method. SMTP is selected in this example. For details about notification see the Connect:Direct for Windows documentation.



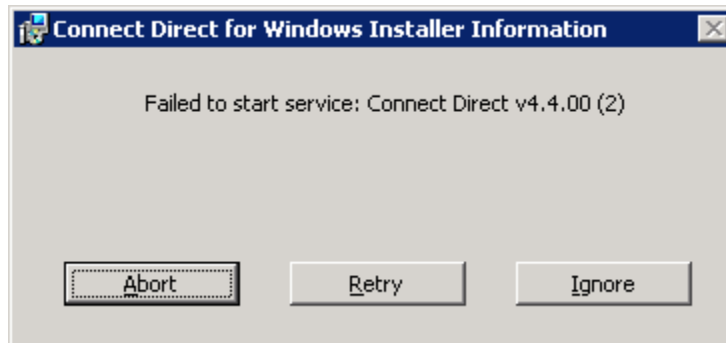
If pre-configured Netmap and/or User Configuration files are to be installed, the files may be pointed to here.



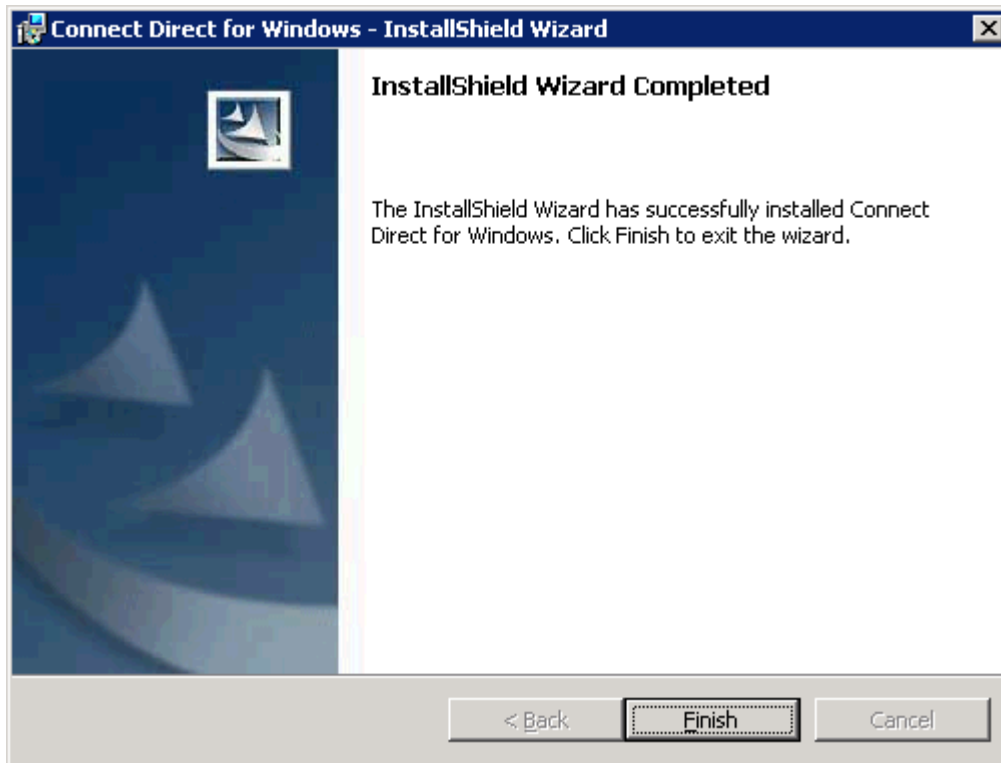
Click Install.



You may see a message like this that indicates Connect:Direct for Windows failed to start. Click “Ignore” so that the installation will continue. The cluster will manage the starting and stopping of the Connect:Direct service.



Click Finish.

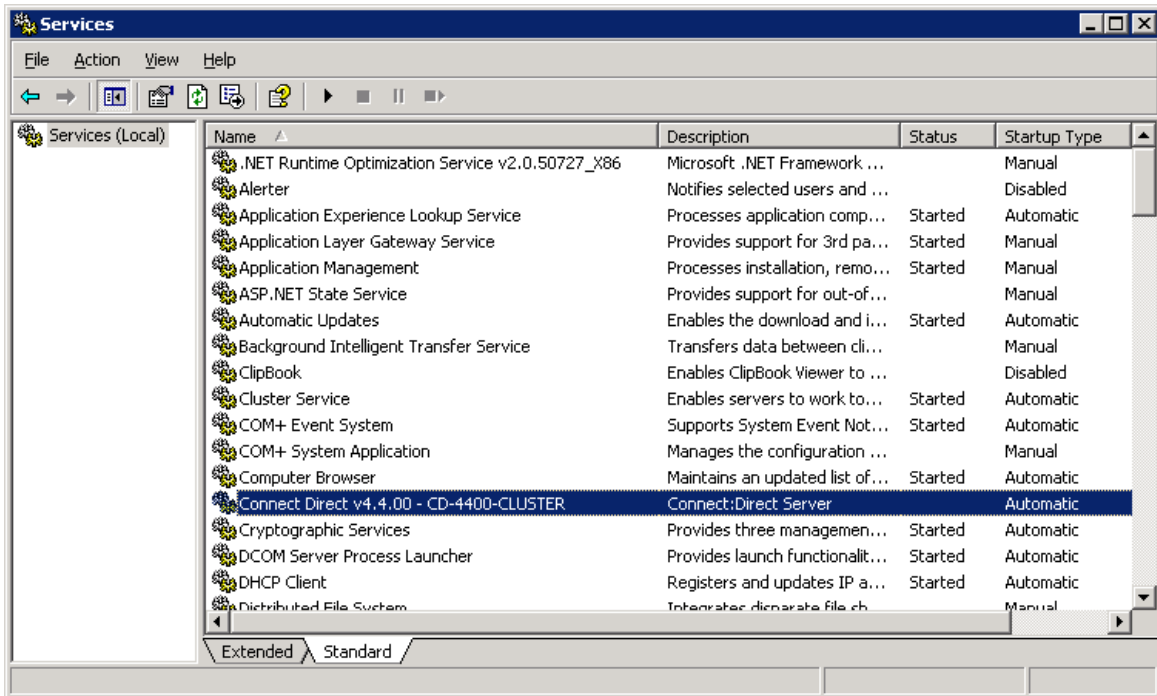


The installation is complete for the first Cluster Node.

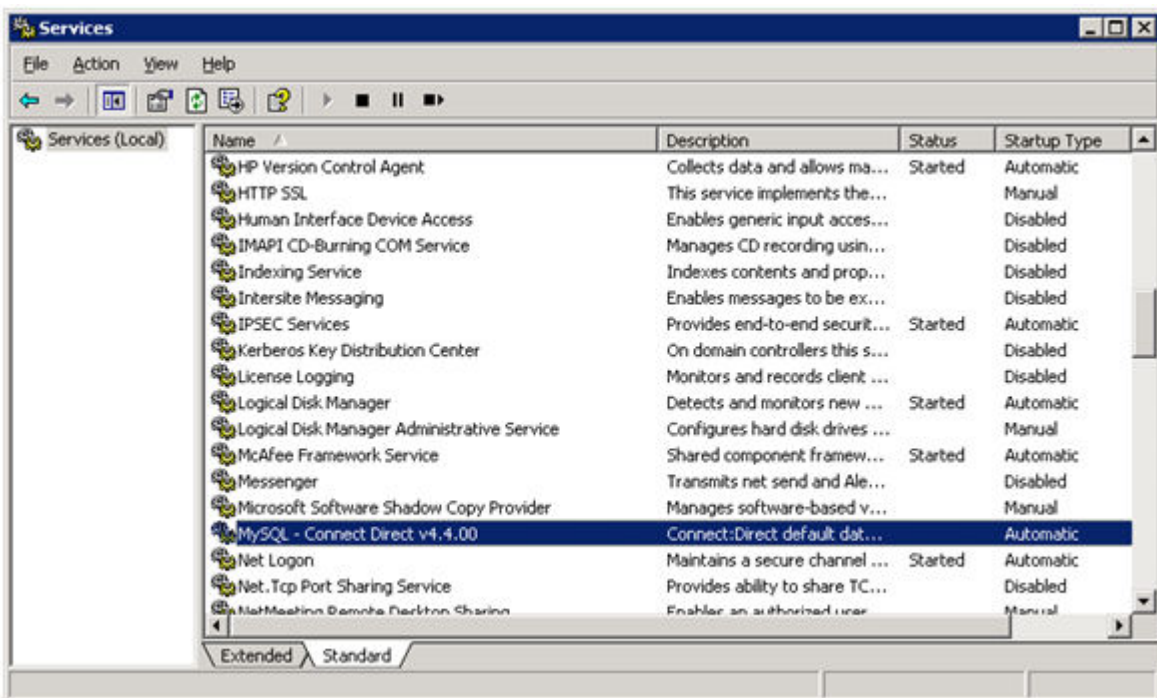
6.2 Remaining Cluster Nodes

Repeat the following steps for all remaining cluster servers:

- Before Connect:Direct for Windows can be installed on any other Cluster Node, you must stop the Connect:Direct Service using Microsoft's Service Control Manager.

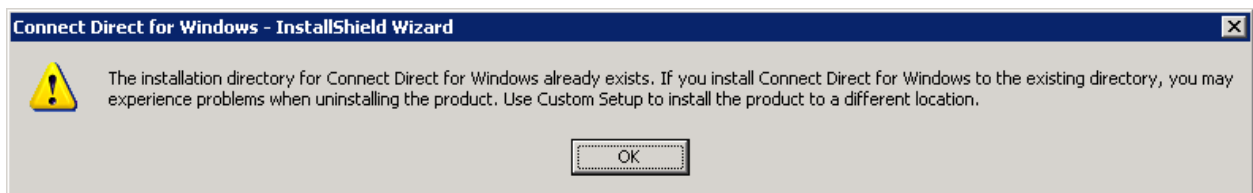


Also, if you are using MySQL as the database for Connect:Direct, you must stop it's service.



- Make any secondary/next cluster server the active server, i.e. make sure the resources are available on this box.
- Install Connect:Direct for Windows to the existing Connect:Direct installation directory from the previous installation. This is to maintain a single installation point for the binaries, etc. and to set up relevant information for a particular cluster node. Follow the same installation steps and notes as described above for the first cluster node installation, specifying the same values. *Also see Connect:Direct for Windows Installation Guide for details.*

Note: The following Warning message may be displayed to warn of copying over an existing install of Connect:Direct for Windows. This is the desired action, each subsequent install on the remaining cluster nodes will write to the same destination directory. Click OK to continue.



- After each installation, you must stop the Connect:Direct Service. Also, if you are using MySQL as the database for Connect:Direct, you must stop it's service too.
- Proceed with the next cluster server.

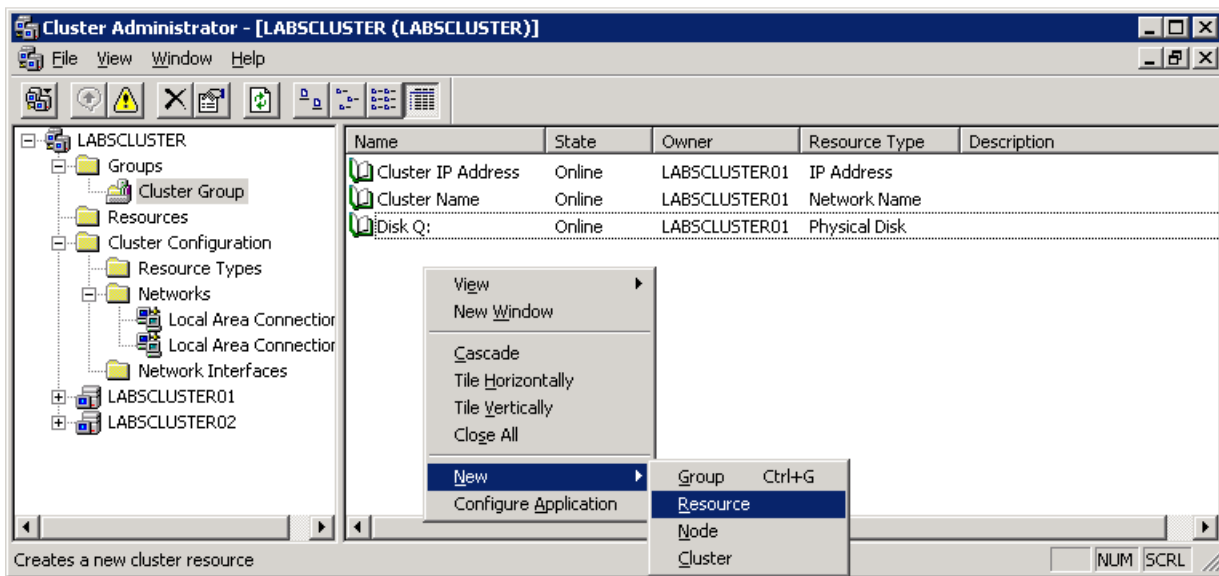
7 Configuring the Cluster

After all installations of Connect:Direct for Windows have been performed for each of the cluster nodes, we need to switch back to the main cluster node and configure Connect:Direct as a resource in the cluster.

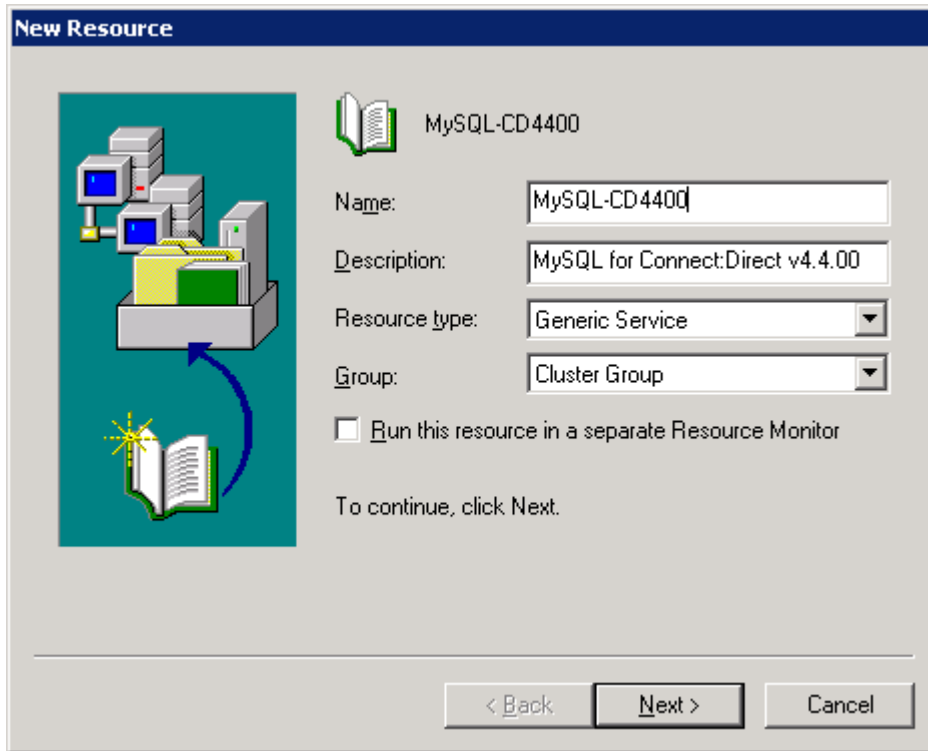
7.1 Cluster Configuration in Windows Server 2003

Launch the **MSCS Application Resource Wizard** and follow the instructions for configuring an application in a group.

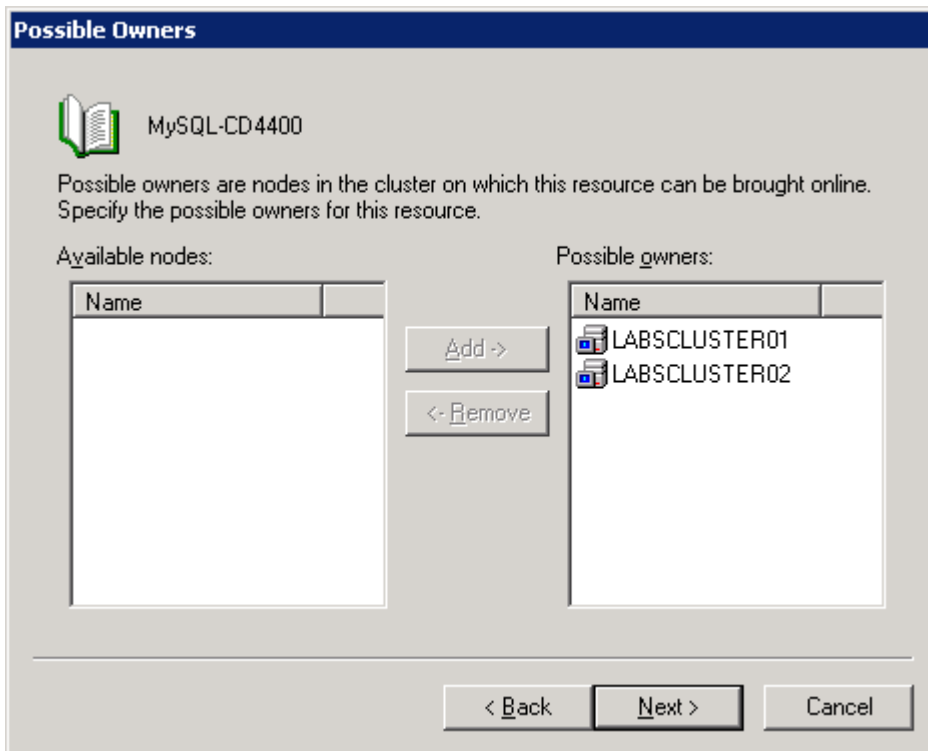
- If you have configured Connect:Direct to use MySQL database, then add the MySQL service as a resource in the Cluster Group.



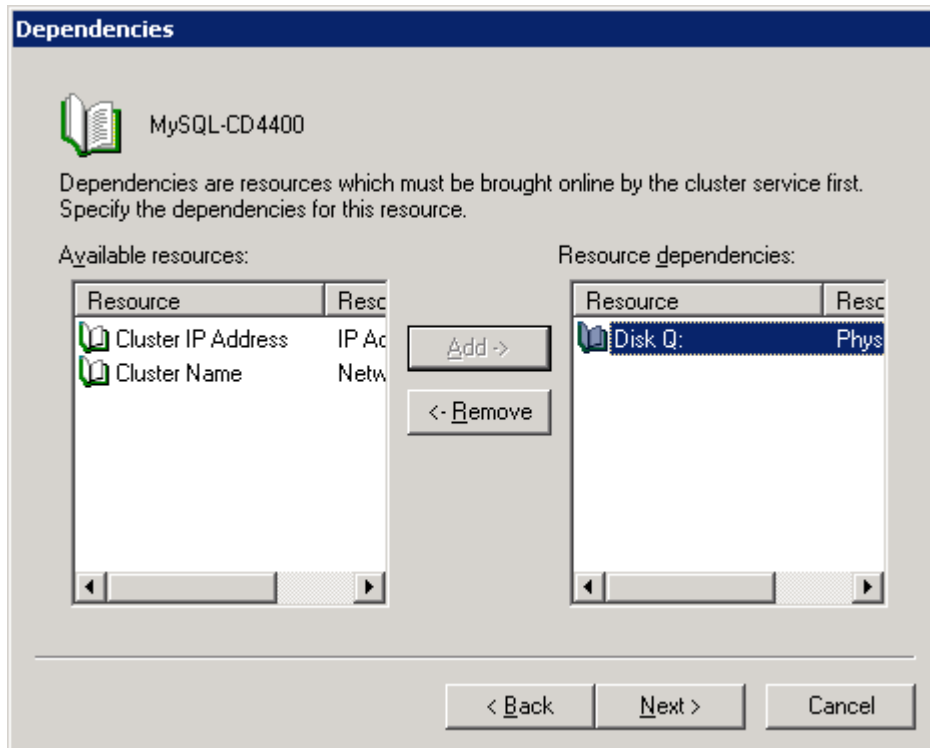
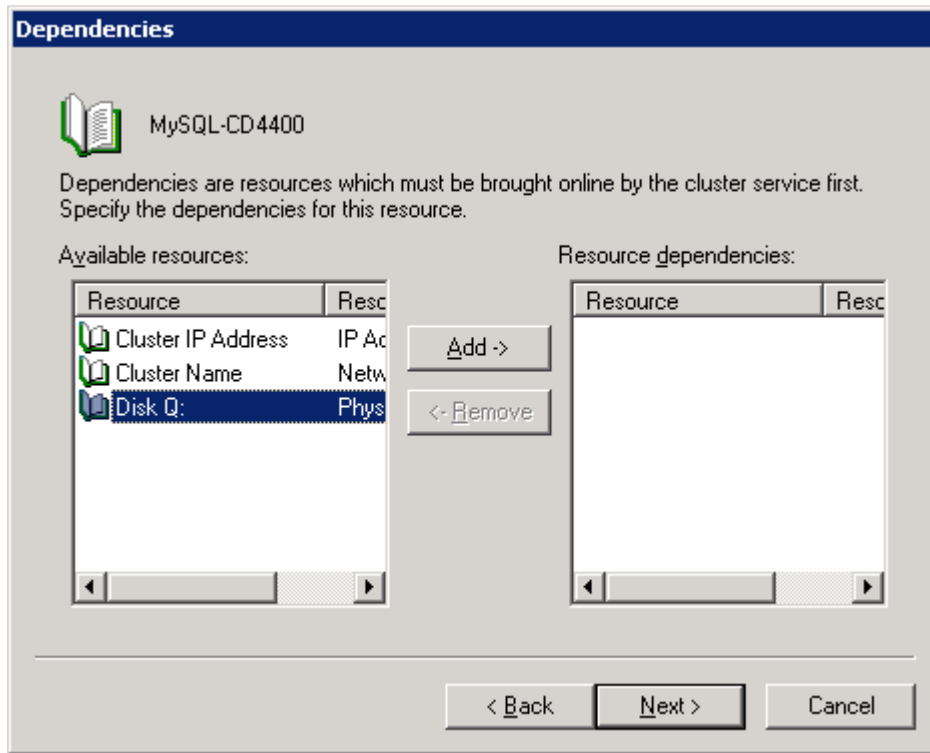
Cluster Administrator – Add new resource. Enter a name and description for the MySQL resource and select “Generic Service” as the type.



Allow all Cluster nodes to take ownership of this resource.



Make the shared disk that the Connect:Direct Server is installed on a dependency of the MySQL service.



Now we must find the service name for the MySQL service. At a command prompt, type “net start” to view the Windows Services. This list shows a list of services currently running on the Windows system. Find the “MySQL – Connect:Direct v4.4.00” entry and use the complete name listed as the service name.

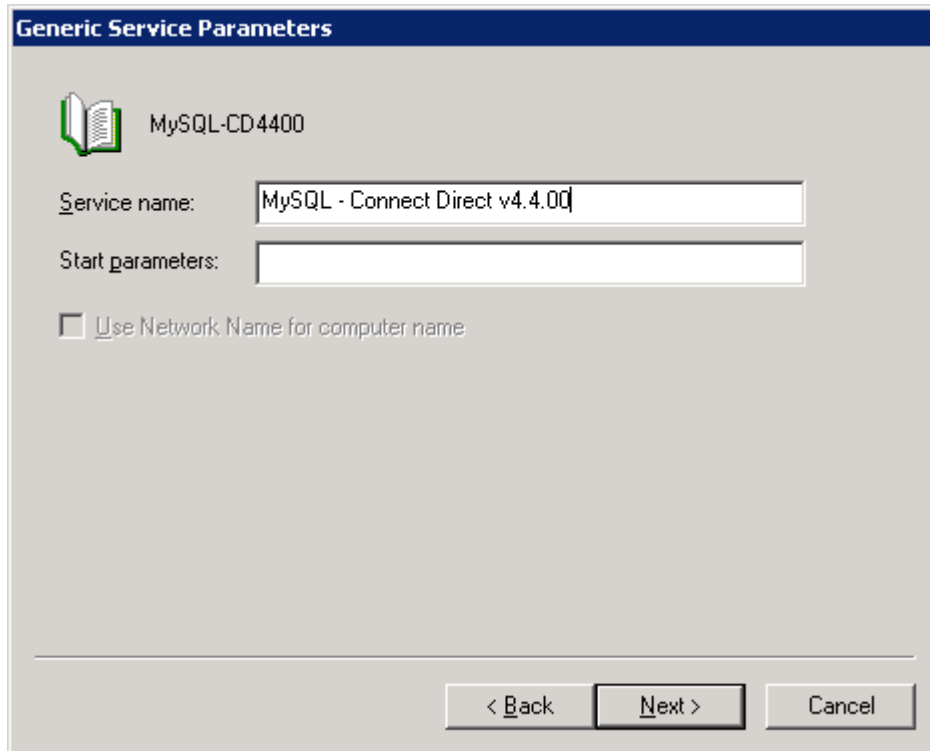


```
C:\WINDOWS\system32\cmd.exe
C:\>
C:\>net start
These Windows services are started:

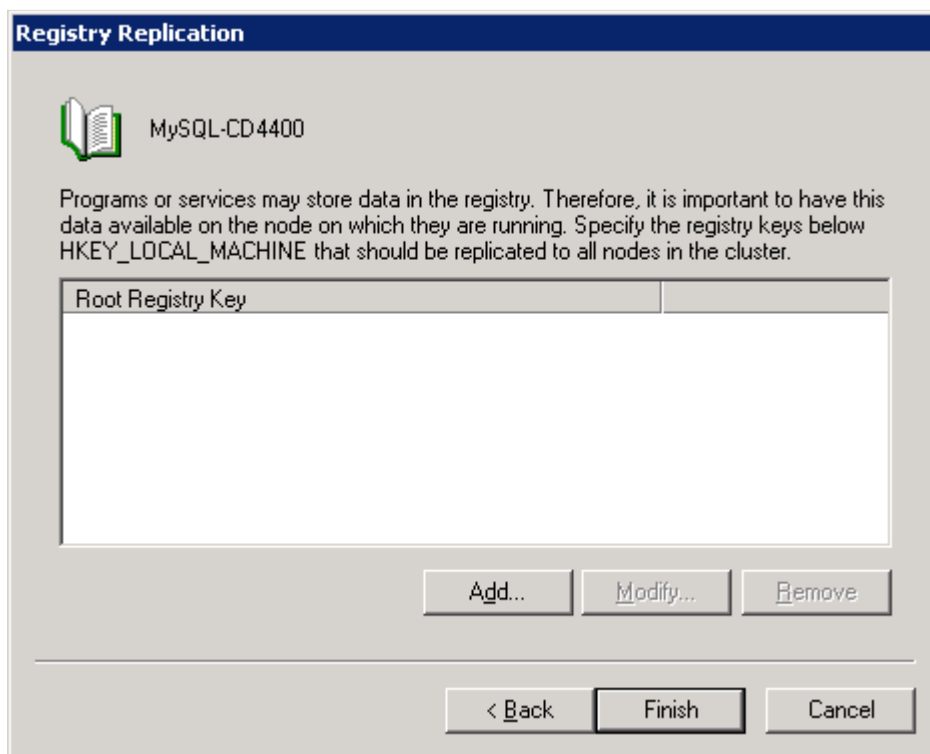
Application Experience Lookup Service
Application Layer Gateway Service
Application Management
Automatic Updates
Cluster Service
COM+ Event System
Computer Browser
Connect Direct v4.4.00 - CD-4400-CLUSTER
Cryptographic Services
DCOM Server Process Launcher
DHCP Client
Distributed Link Tracking Client
DNS Client
Error Reporting Service
Event Log
HP Insight Foundation Agents
HP Insight NIC Agent
HP Insight Server Agents
HP Insight Storage Agents
HP ProLiant Remote Monitor Service
HP ProLiant System Shutdown Service
HP System Management Homepage
HP Version Control Agent
IPSEC Services
Logical Disk Manager
McAfee Framework Service
MySQL - Connect Direct v4.4.00
Net Logon
Network Associates McShield
Network Associates Task Manager
Network Connections
Network Location Awareness (NLA)
Plug and Play
Print Spooler
Protected Storage
Remote Access Connection Manager
Remote Procedure Call (RPC)
Remote Registry
Secondary Logon
Security Accounts Manager
Server
Shell Hardware Detection
SNMP Service
System Event Notification
Task Scheduler
TCP/IP NetBIOS Helper
Telephony
Terminal Services
Windows Audio
Windows Firewall/Internet Connection Sharing (ICS)
Windows Installer
Windows Management Instrumentation
Windows Time
Wireless Configuration
Workstation

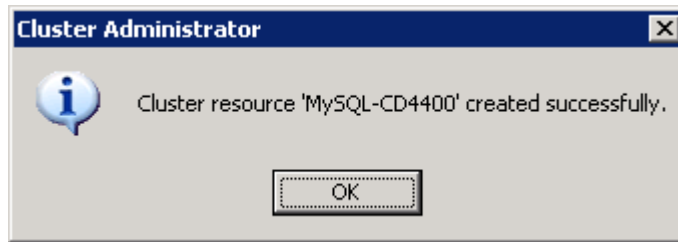
The command completed successfully.

C:\>
```



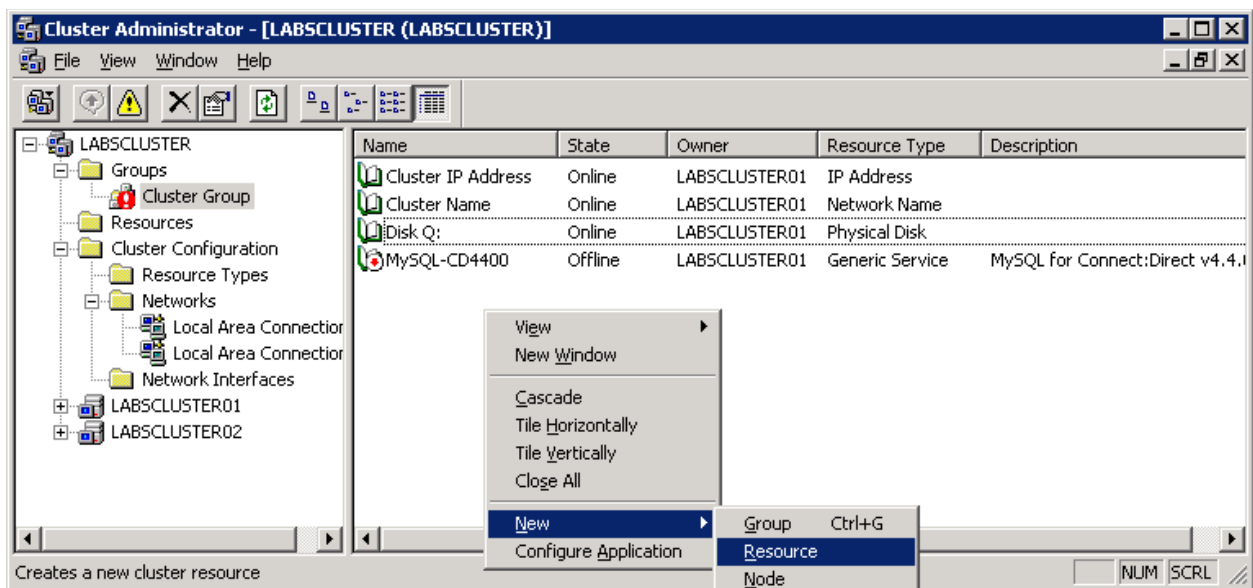
MySQL service does not require registry replication. Click "Finish".



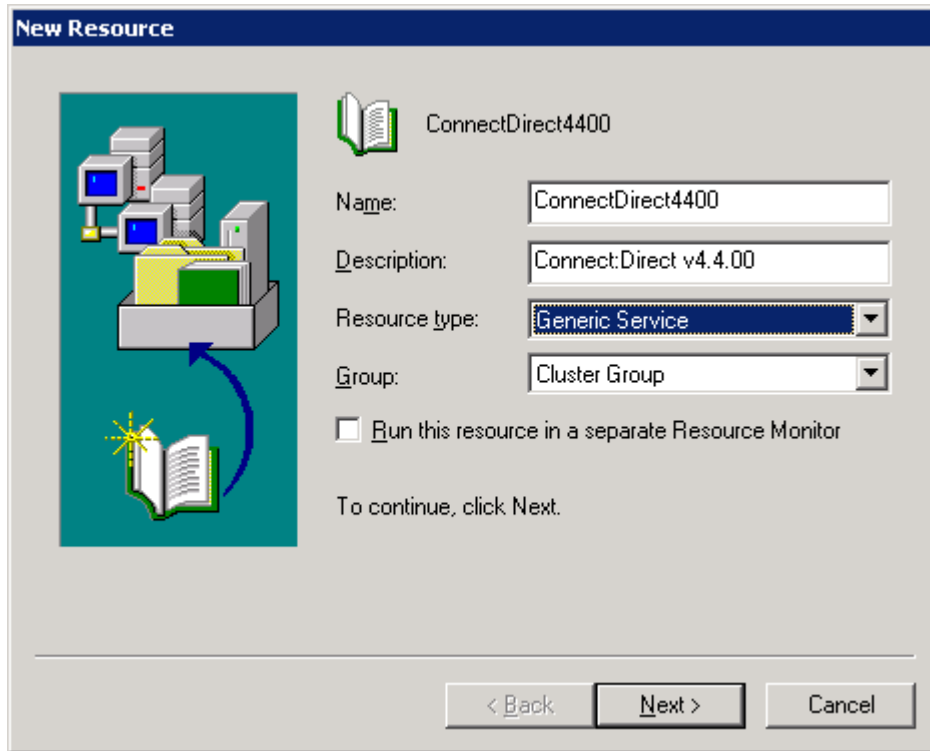


That completes the MySQL portion for the Cluster Administrator.

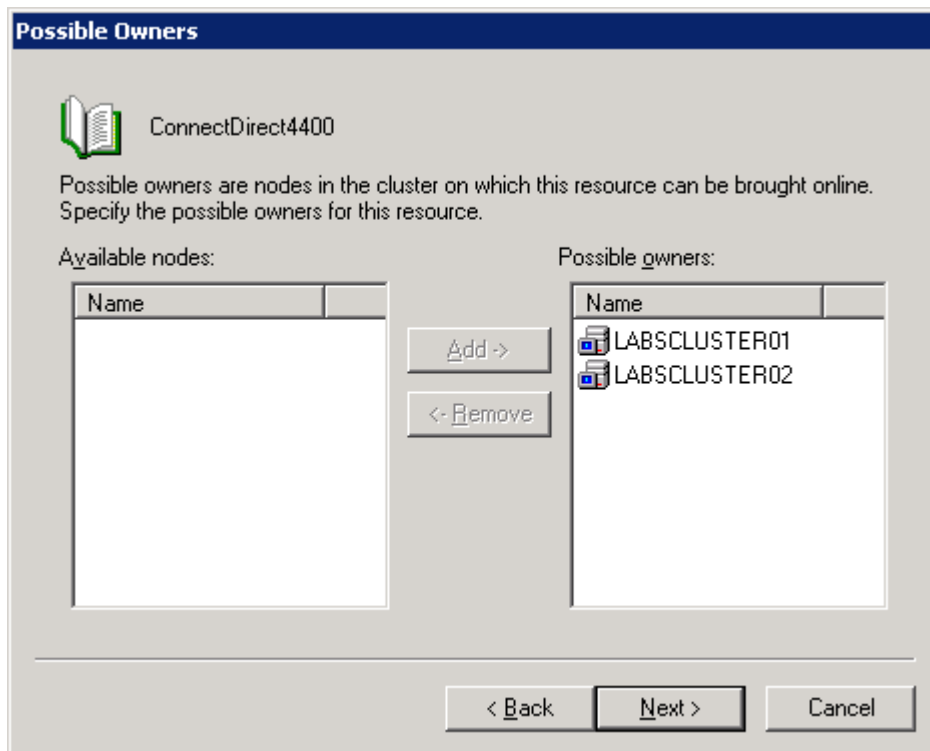
- Now we must add the Connect:Direct service into the Cluster as a managed cluster resource for the Cluster Group.



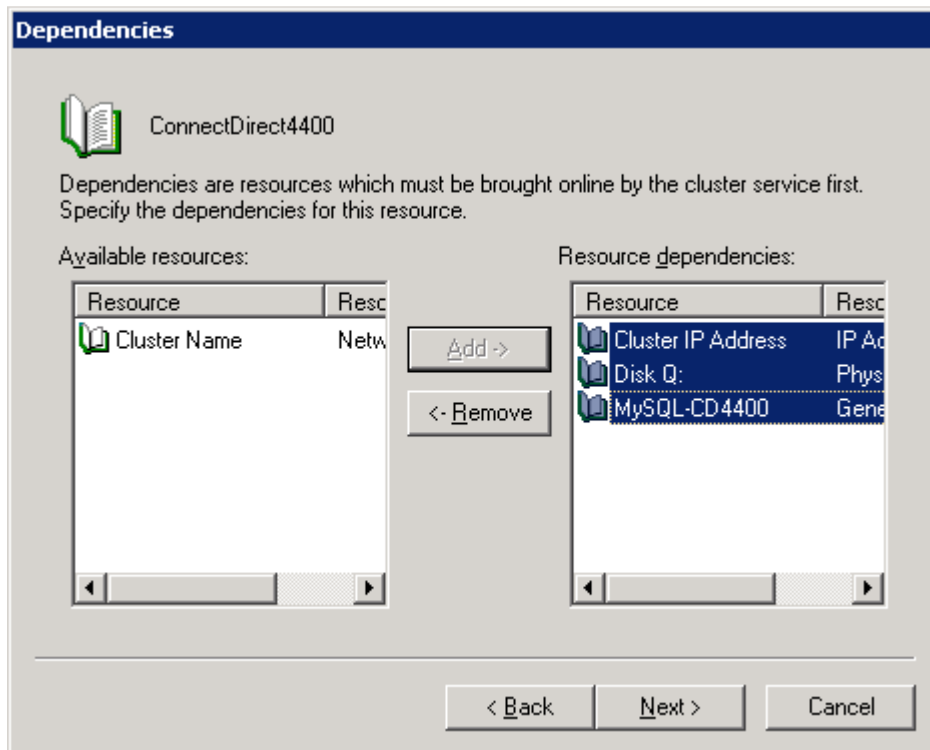
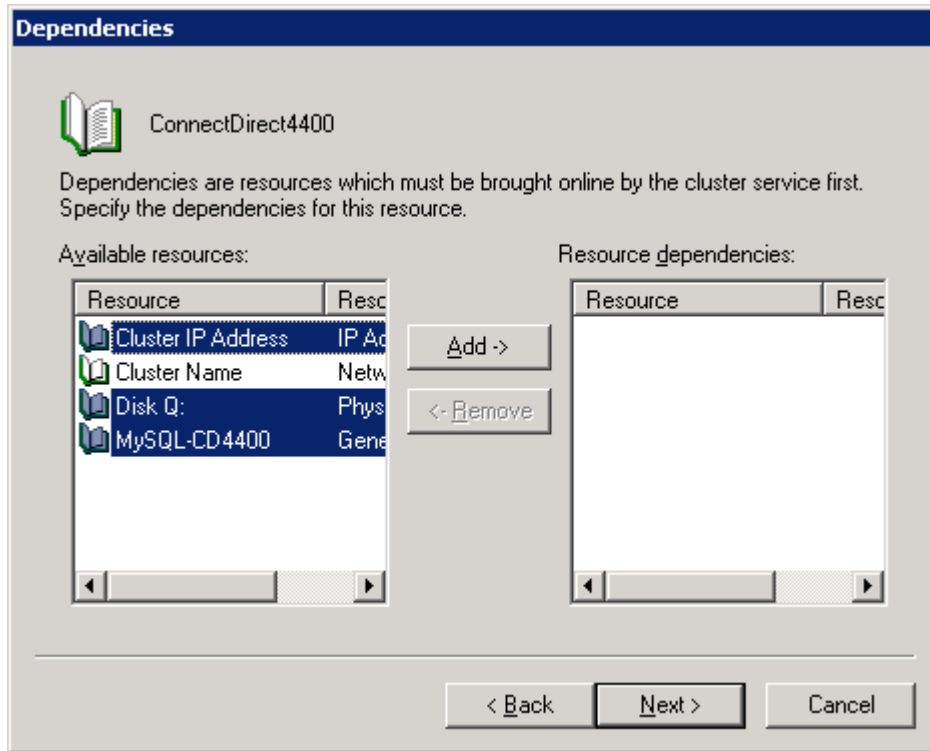
Cluster Administrator – Add new resource. Enter a name and description for the Connect:Direct resource and select “Generic Service” as the type.



Allow all Cluster nodes to take ownership of this resource.



The Connect:Direct resource must have dependencies of the Cluster's Virtual IP Address, the shared disk that Connect:Direct was installed onto, and the MySQL resource previously added (if using MySQL).



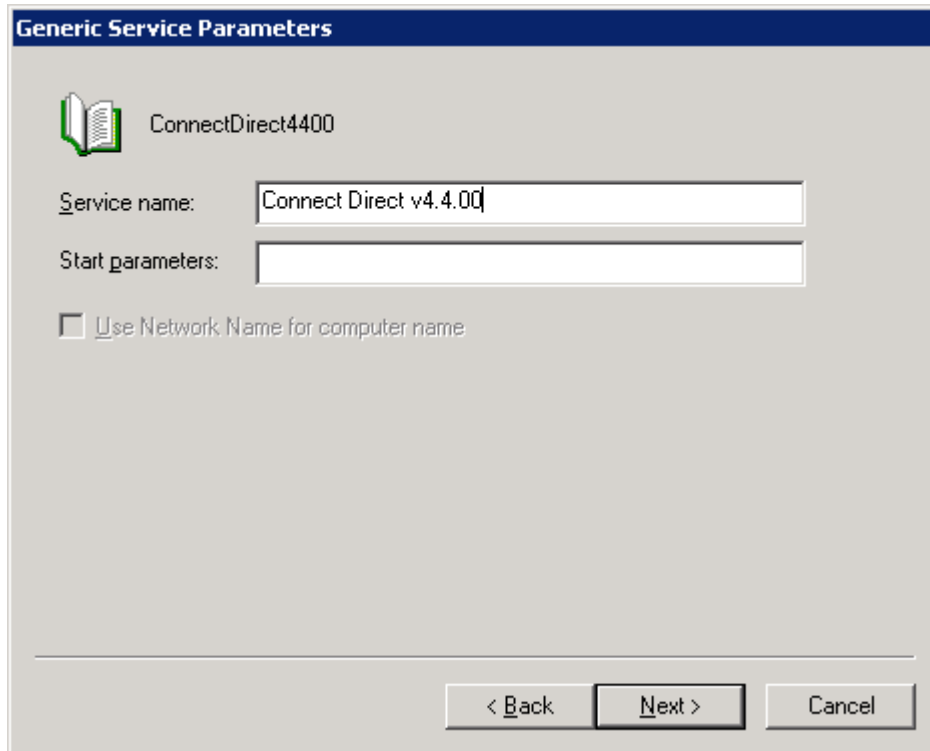
Now we must find the service name for the Connect:Direct service. At a command prompt type “*net start*” to view the Windows Services. This list shows a list of services currently running on the Windows system. You will use the first portion of the Connect:Direct Service name as the service name when setting up the service in the Cluster Administrator.



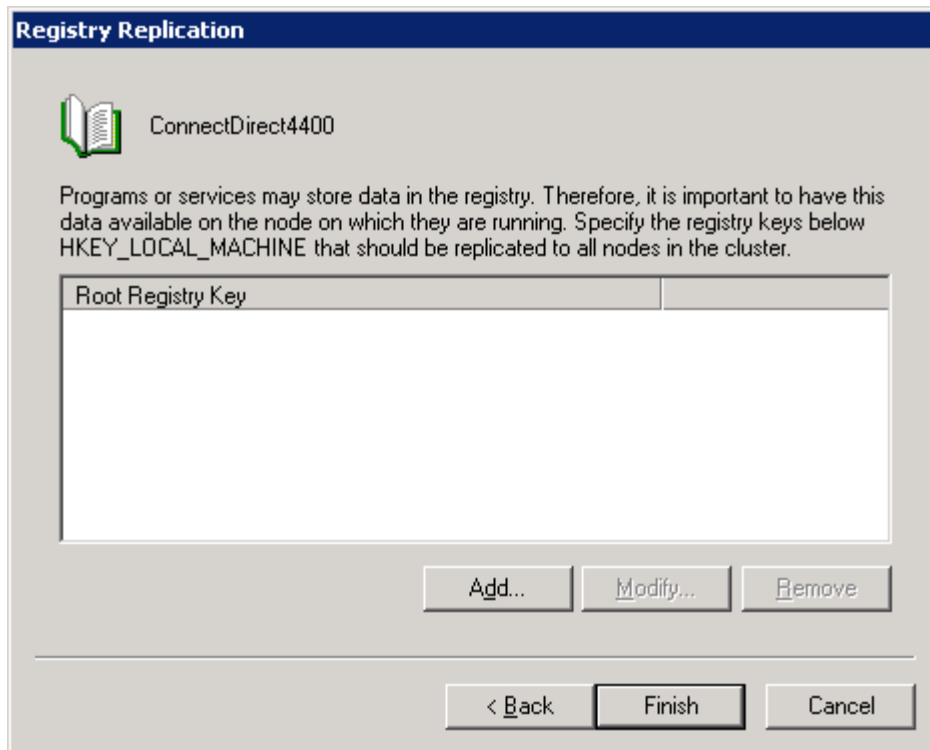
```
C:\WINDOWS\system32\cmd.exe
C:\>
C:\>net start
These Windows services are started:

Application Experience Lookup Service
Application Layer Gateway Service
Application Management
Automatic Updates
Cluster Service
COM+ Event System
Computer Browser
Connect Direct v4.4.00 - CD-4400-CLUSTER
Cryptographic Services
DCOM Server Process Launcher
DHCP Client
Distributed Link Tracking Client
DNS Client
Error Reporting Service
Event Log
HP Insight Foundation Agents
HP Insight NIC Agent
HP Insight Server Agents
HP Insight Storage Agents
HP ProLiant Remote Monitor Service
HP ProLiant System Shutdown Service
HP System Management Homepage
HP Version Control Agent
IPSEC Services
Logical Disk Manager
McAfee Framework Service
MySQL - Connect Direct v4.4.00
Net Logon
Network Associates McShield
Network Associates Task Manager
Network Connections
Network Location Awareness (NLA)
Plug and Play
Print Spooler
Protected Storage
Remote Access Connection Manager
Remote Procedure Call (RPC)
Remote Registry
Secondary Logon
Security Accounts Manager
Server
Shell Hardware Detection
SNMP Service
System Event Notification
Task Scheduler
TCP/IP NetBIOS Helper
Telephony
Terminal Services
Windows Audio
Windows Firewall/Internet Connection Sharing (ICS)
Windows Installer
Windows Management Instrumentation
Windows Time
Wireless Configuration
Workstation

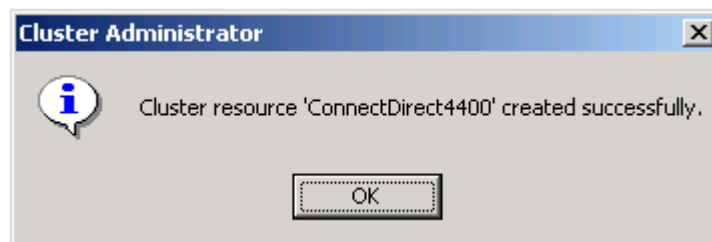
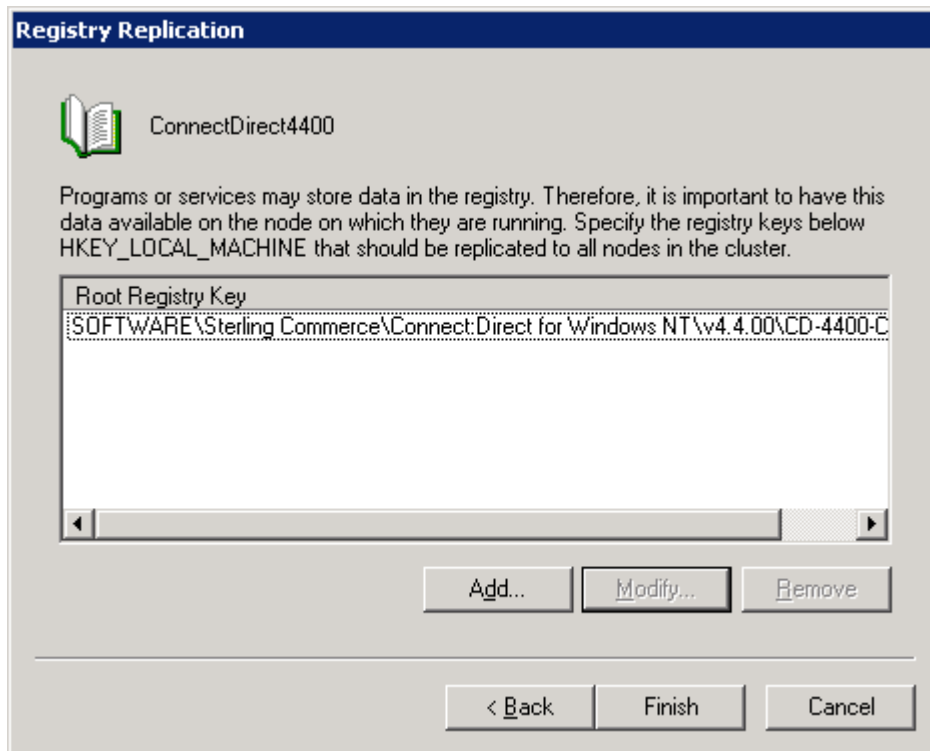
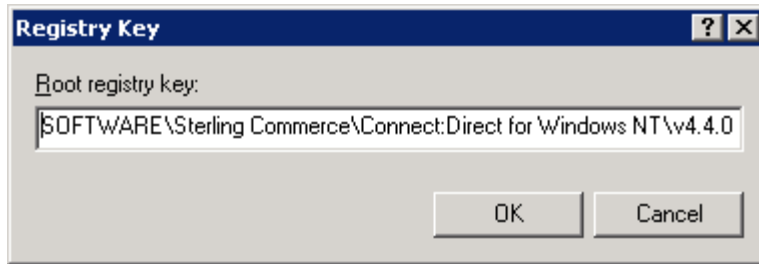
The command completed successfully.
C:\>
```



- Registry Replication must be set up to allow the Connect:Direct for Windows settings to be replicated to all other nodes in the cluster. Select the “Add” button to add the registry key for Connect:Direct for Windows.



- Replicate the C:D registry key “SOFTWARE\Sterling Commerce\Connect:Direct for Windows NT\v4.4.00\<node name>”.

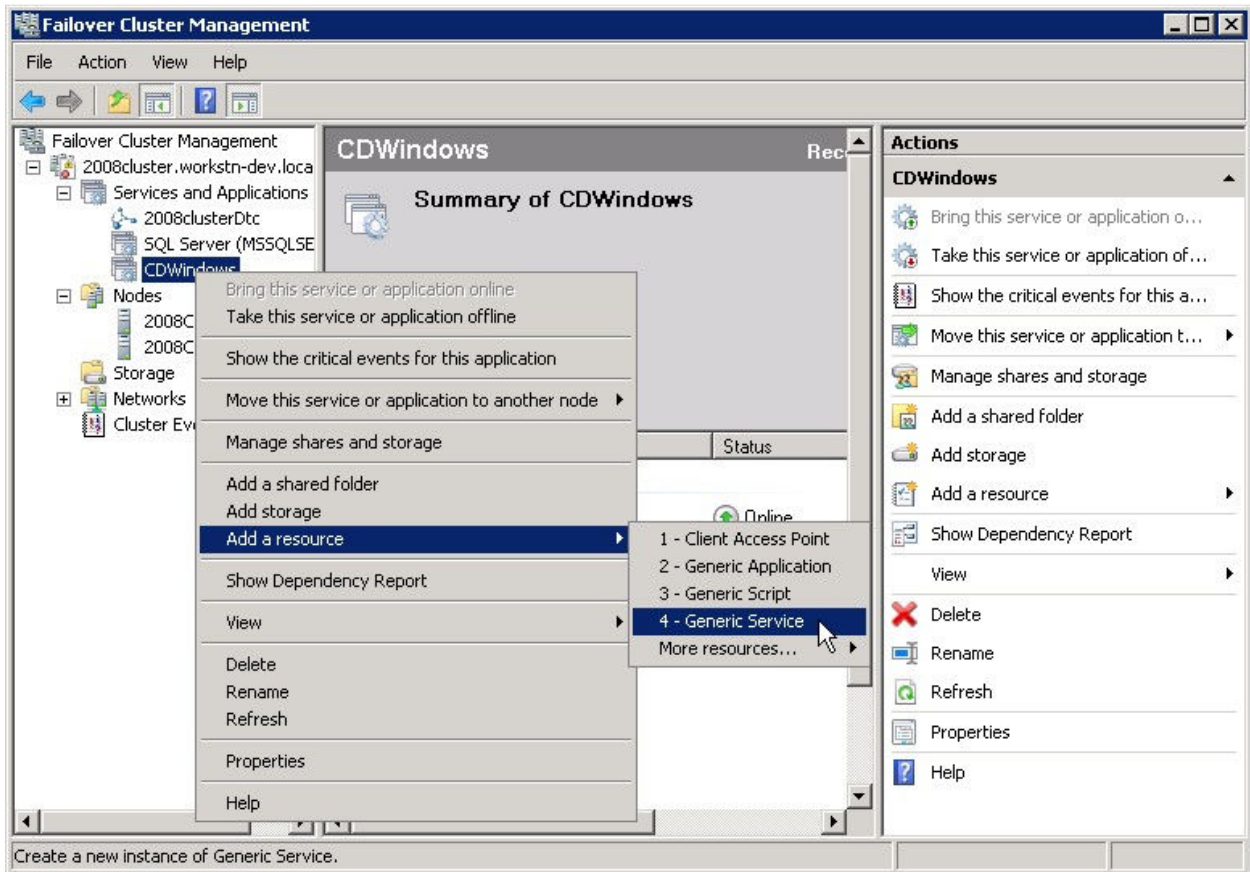


That completes the Connect:Direct for Windows portion for the Cluster Administrator.

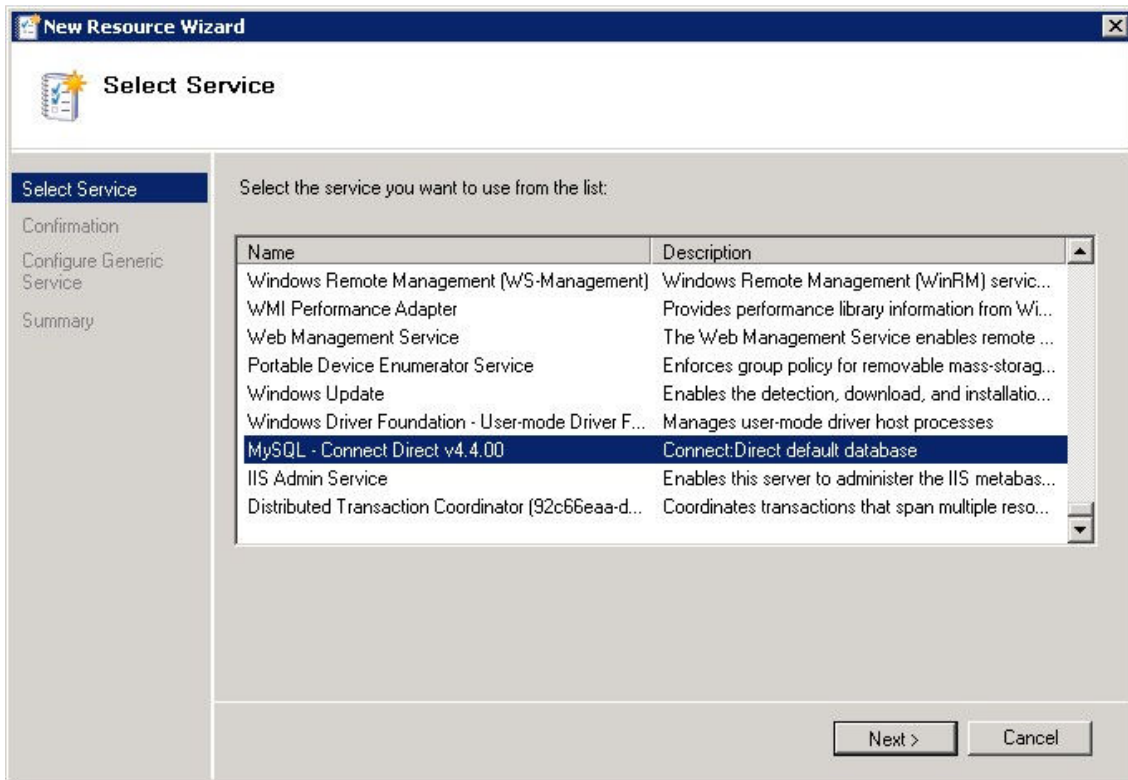
7.2 Cluster Configuration in Windows Server 2008

Launch the **Failover Cluster Management** console and follow the instructions of the “New Resource Wizard” to add the Connect:Direct and MySQL services.

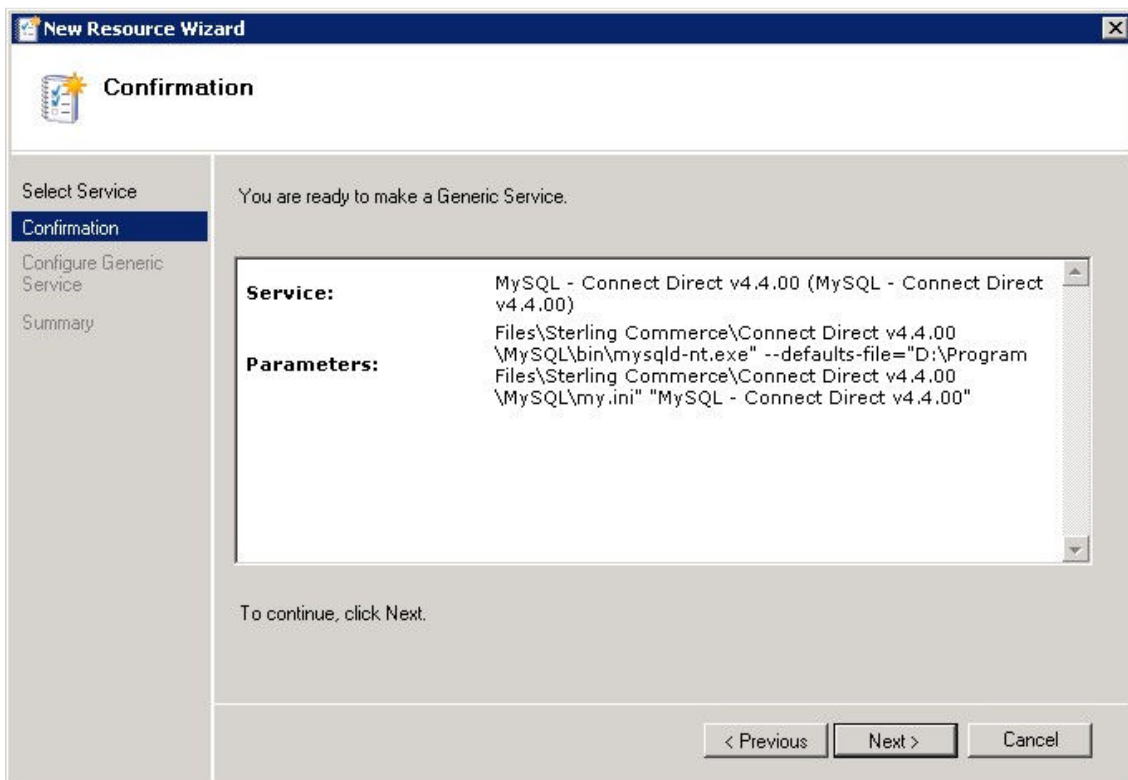
- If you have configured Connect:Direct to use MySQL database, then add the MySQL service as a resource to the “CDWindows” service group. Select “4 – Generic Service”.



Pick the MySQL service from the list.

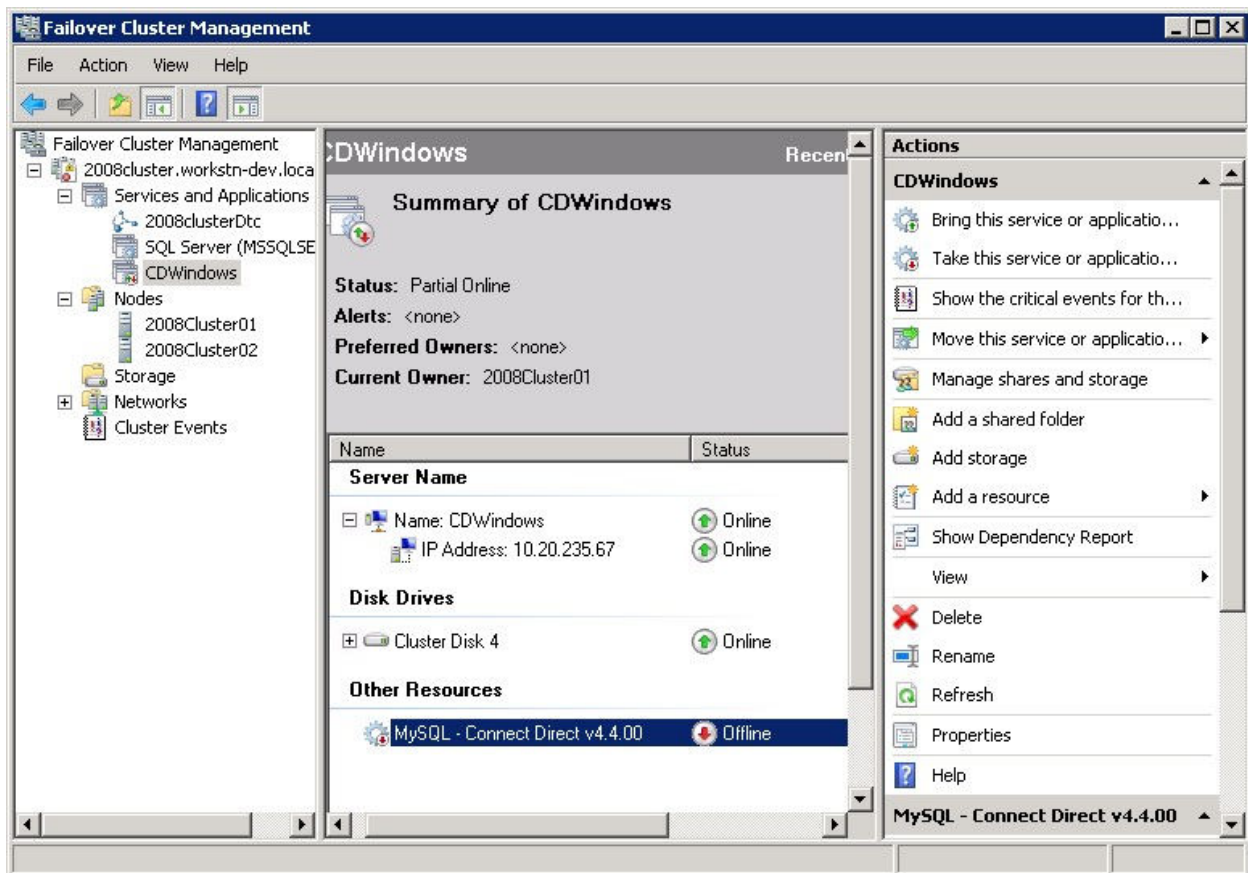


The "Confirmation" appears. Ignore if Parameters is showing an incomplete path to mysqld-nt.exe.

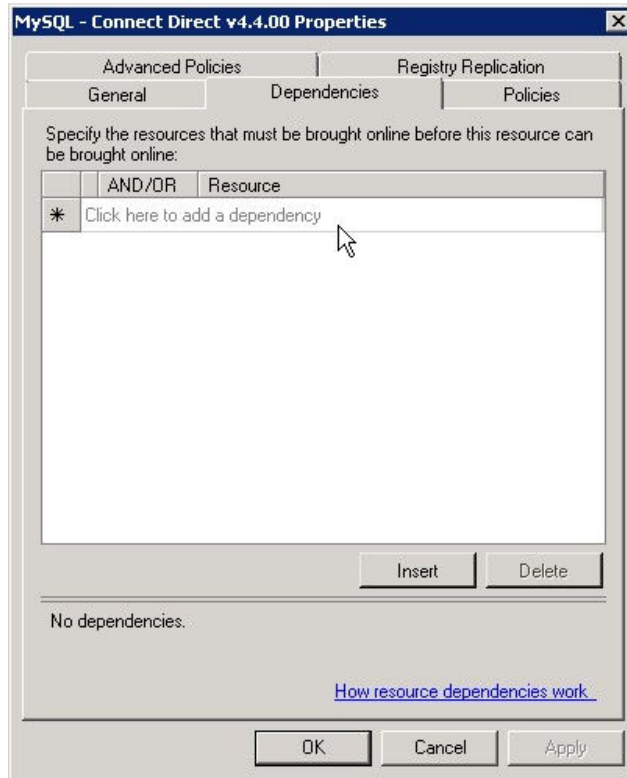




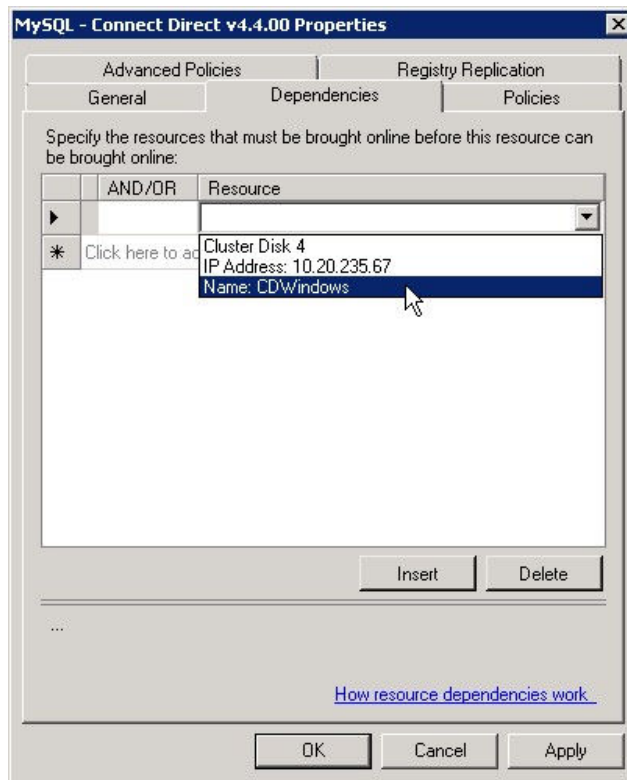
Click "Finish" to add the service.



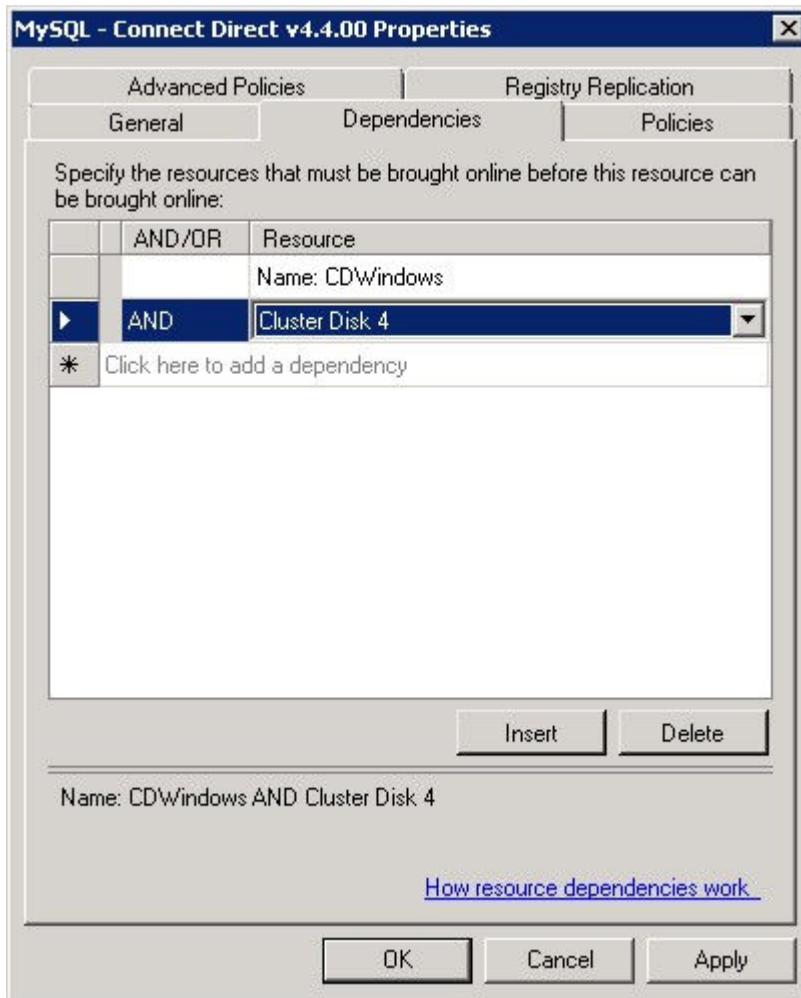
Open the properties of the MySQL resource and switch to the “Dependencies” tab.



Add a dependency to “Name: CDWindows”.



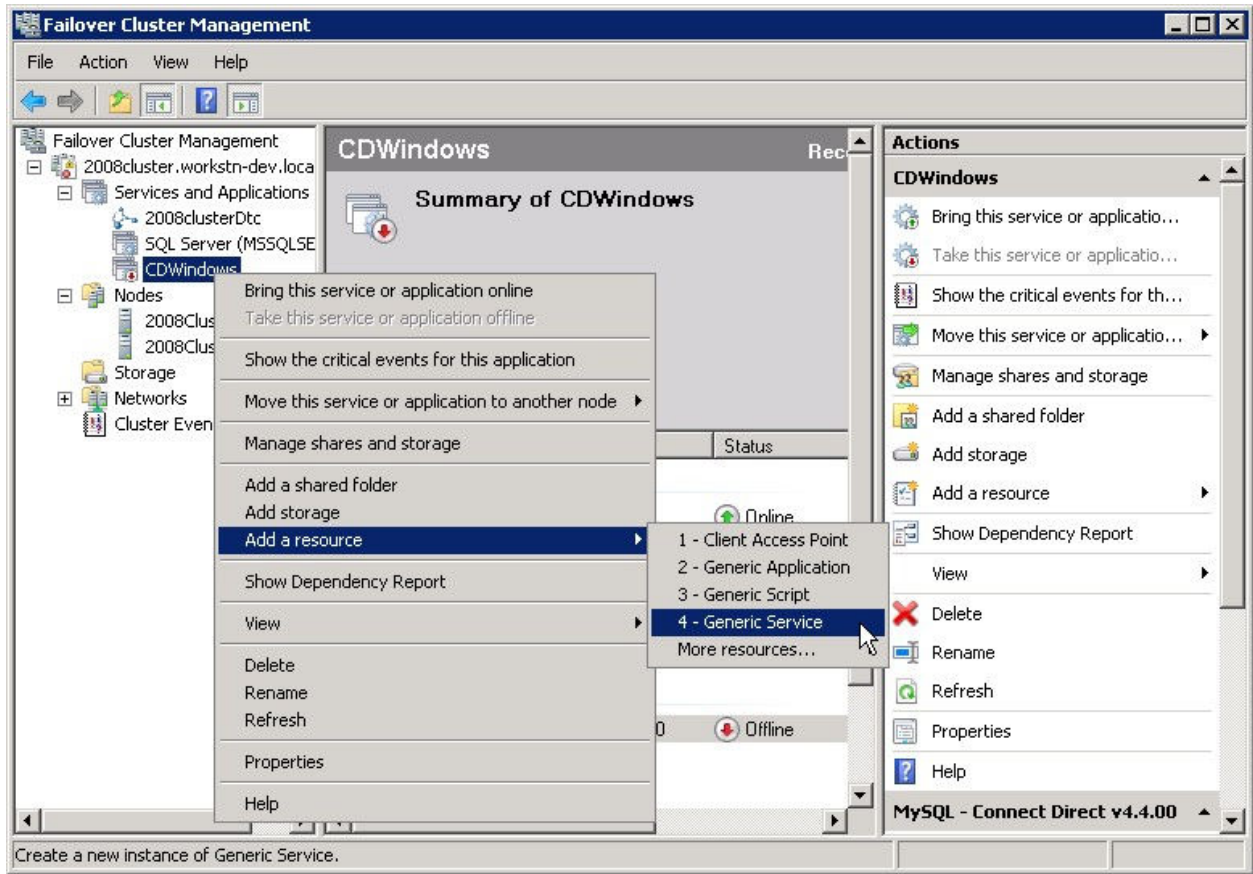
Add a dependency to the shared disk.



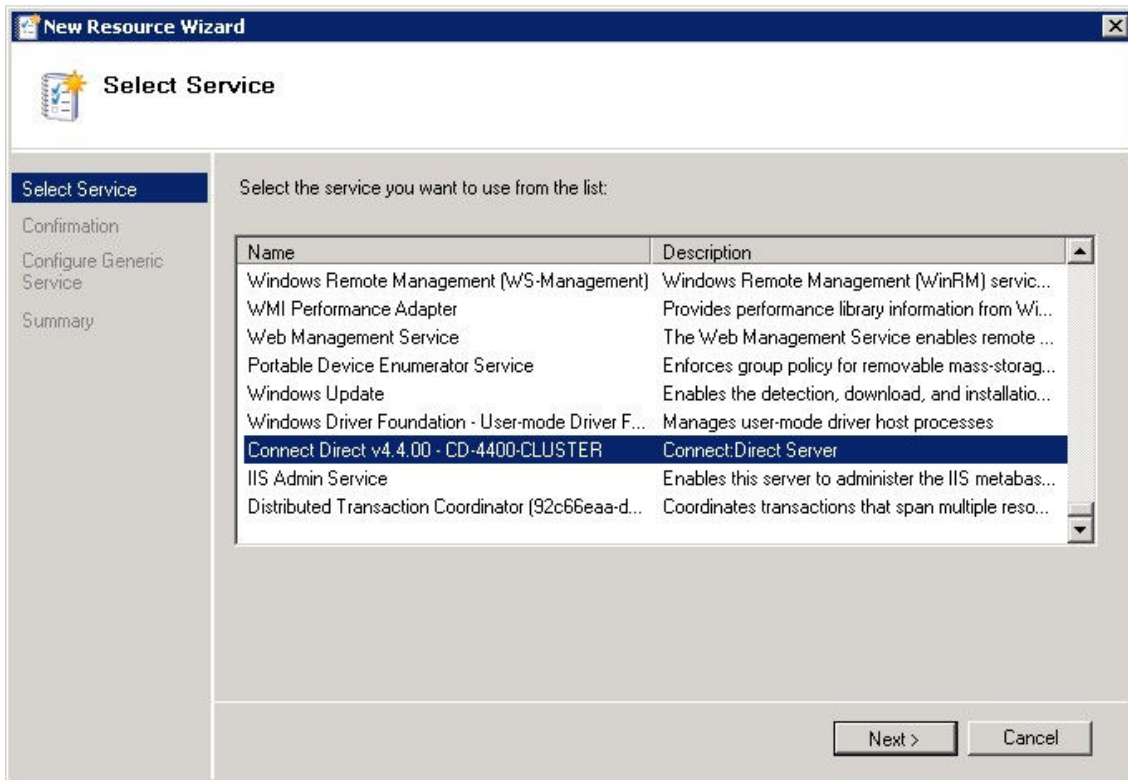
Click "OK" to complete the service configuration for MySQL.

That completes the MySQL portion for the Failover Cluster Management.

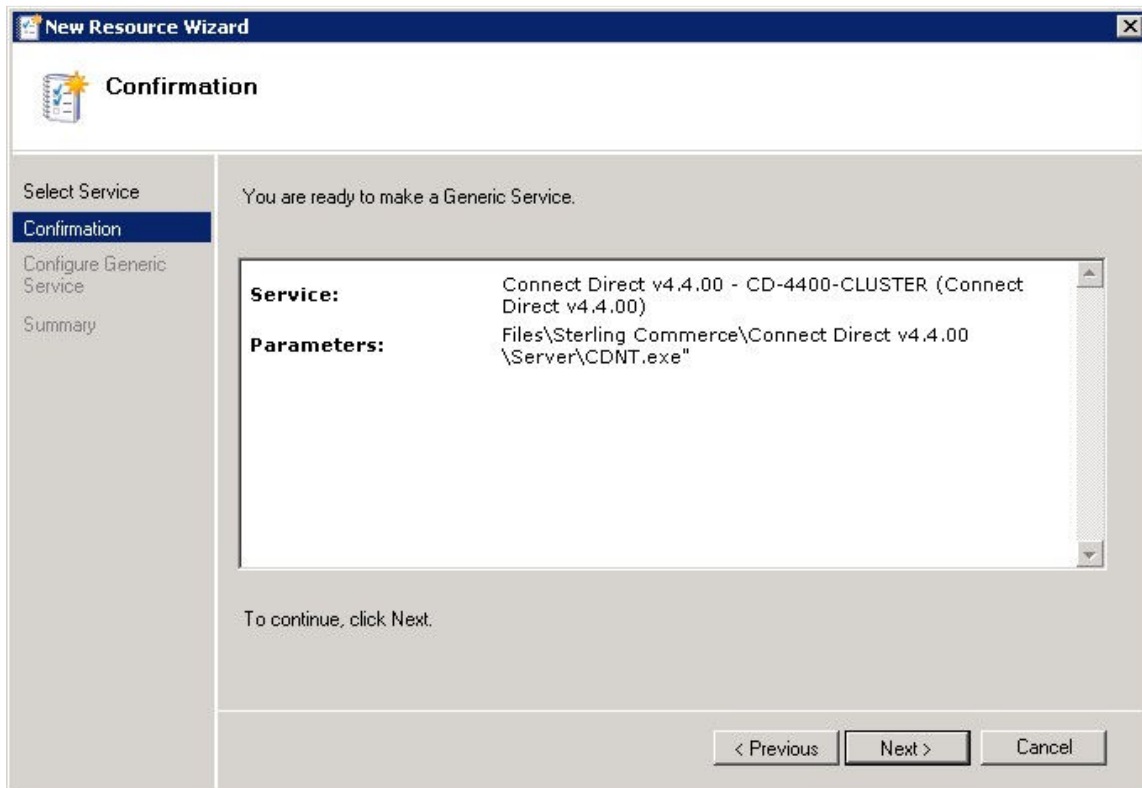
- To add the Connect:Direct service as a resource to the “CDWindows” service group, select “4 – Generic Service”.

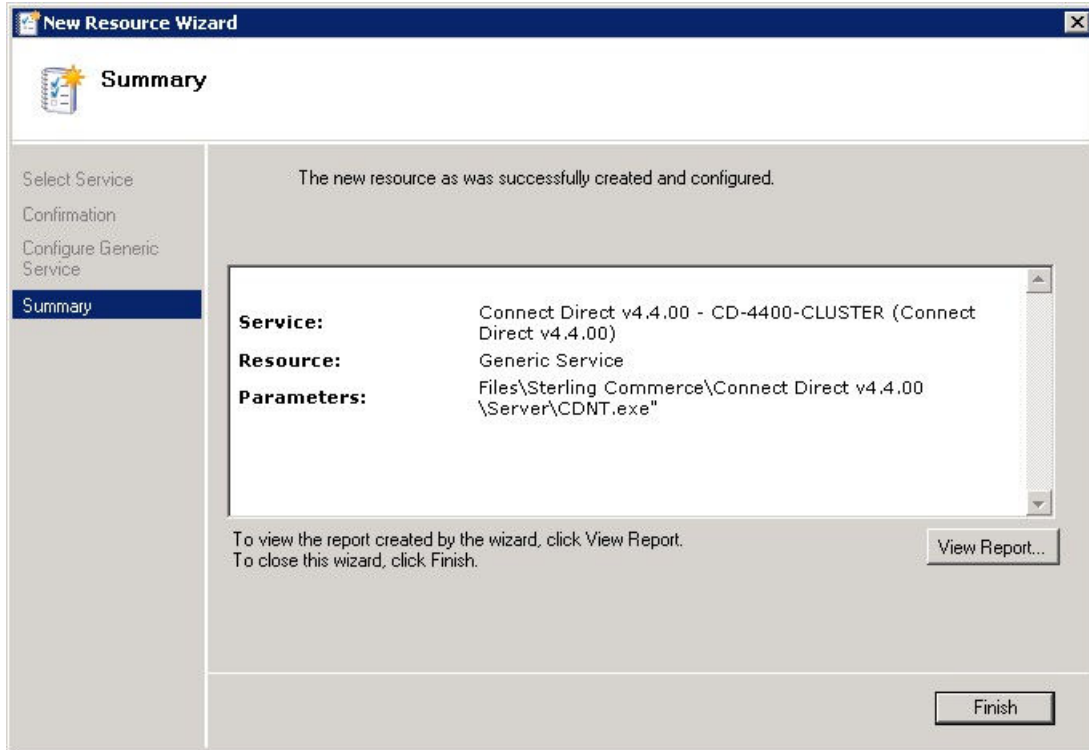


Pick the Connect:Direct v4.4.00 service from the list.

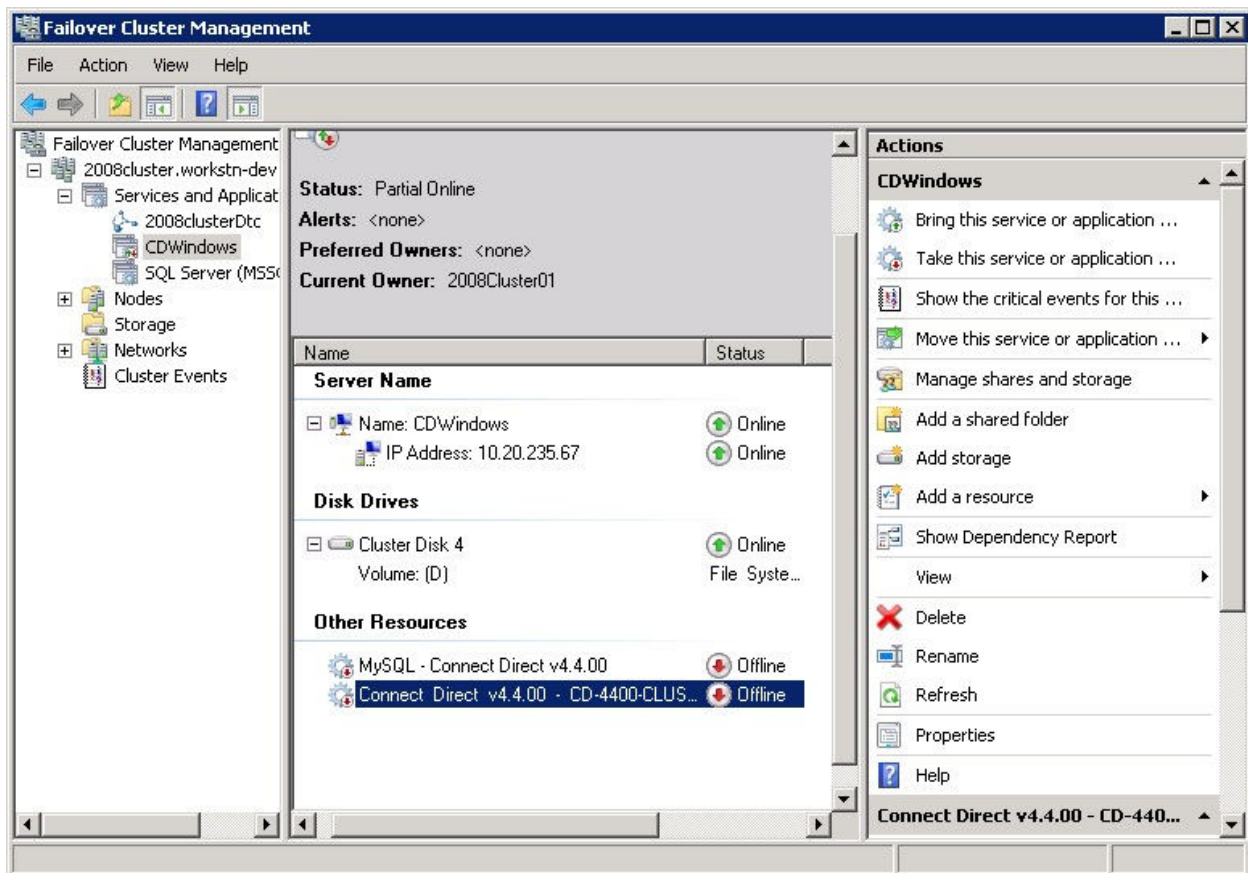


The "Confirmation" window appears. Ignore if Parameters is showing an incomplete path to CDNT.exe.

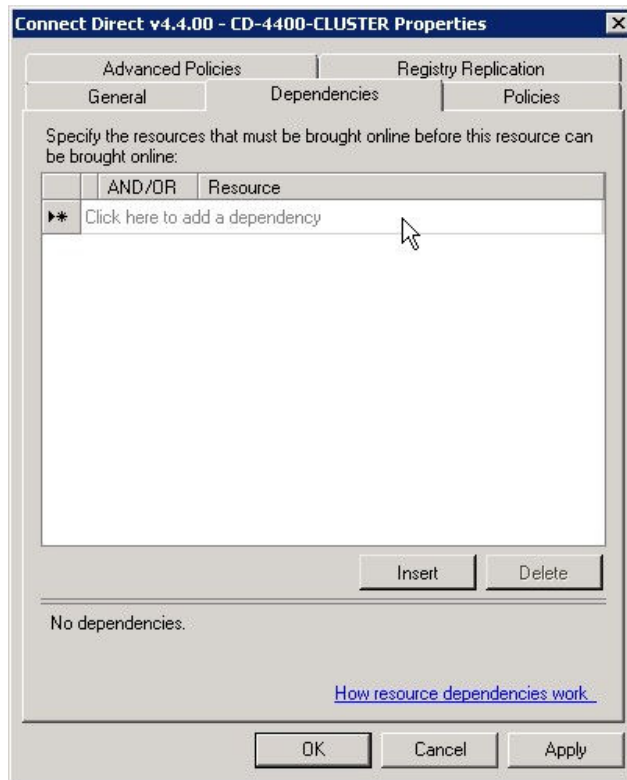




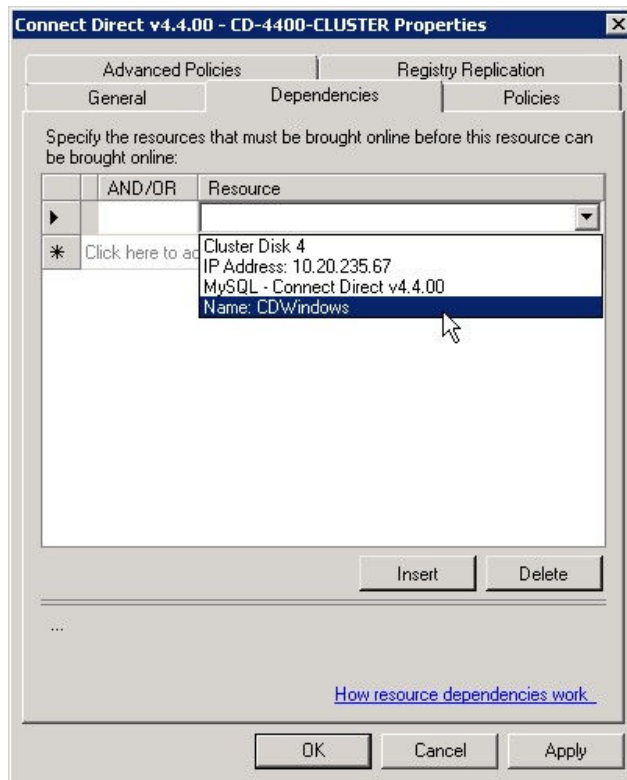
Click "Finish" to add the service.



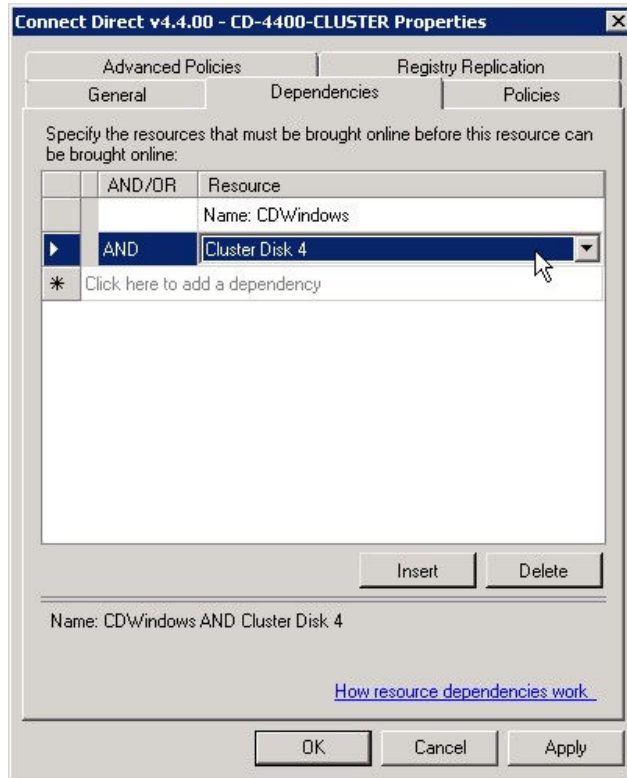
Open the properties of the Connect Direct v4.4.00 resource and switch to the “Dependencies” tab.



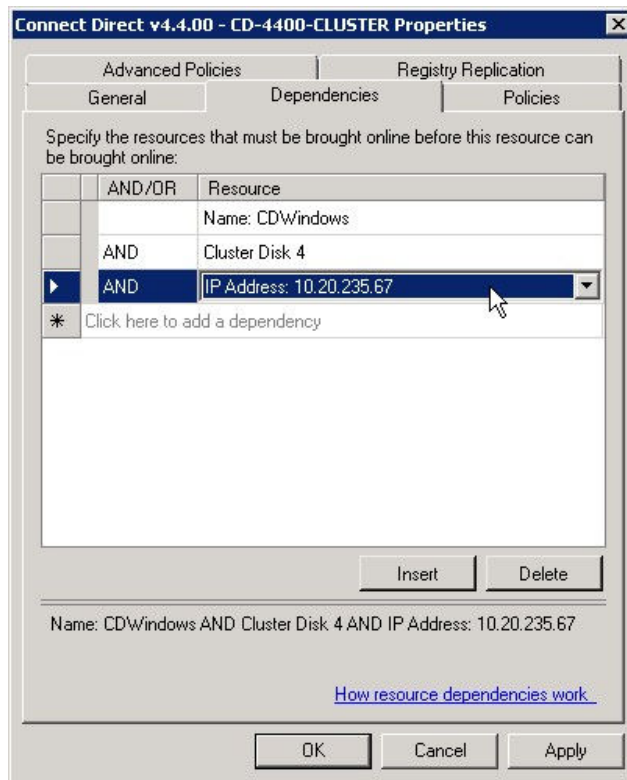
Add a dependency to “Name: CDWindows”.



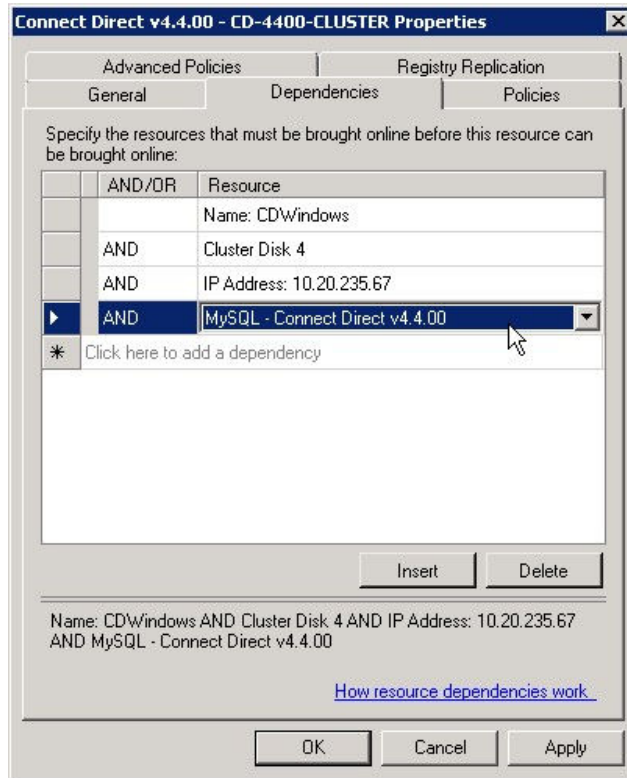
Add a dependency to the shared disk.



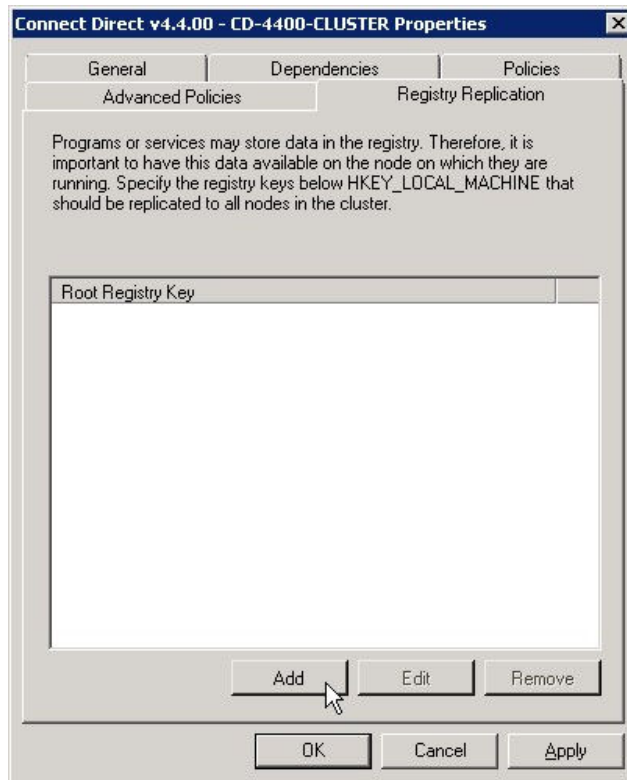
Add a dependency to the "IP Address".



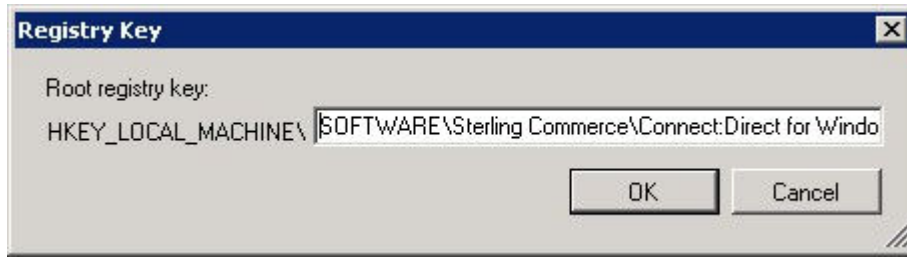
If MySQL is used, add a dependency to the MySQL service.



- Switch to the "Registry Replication" tab.



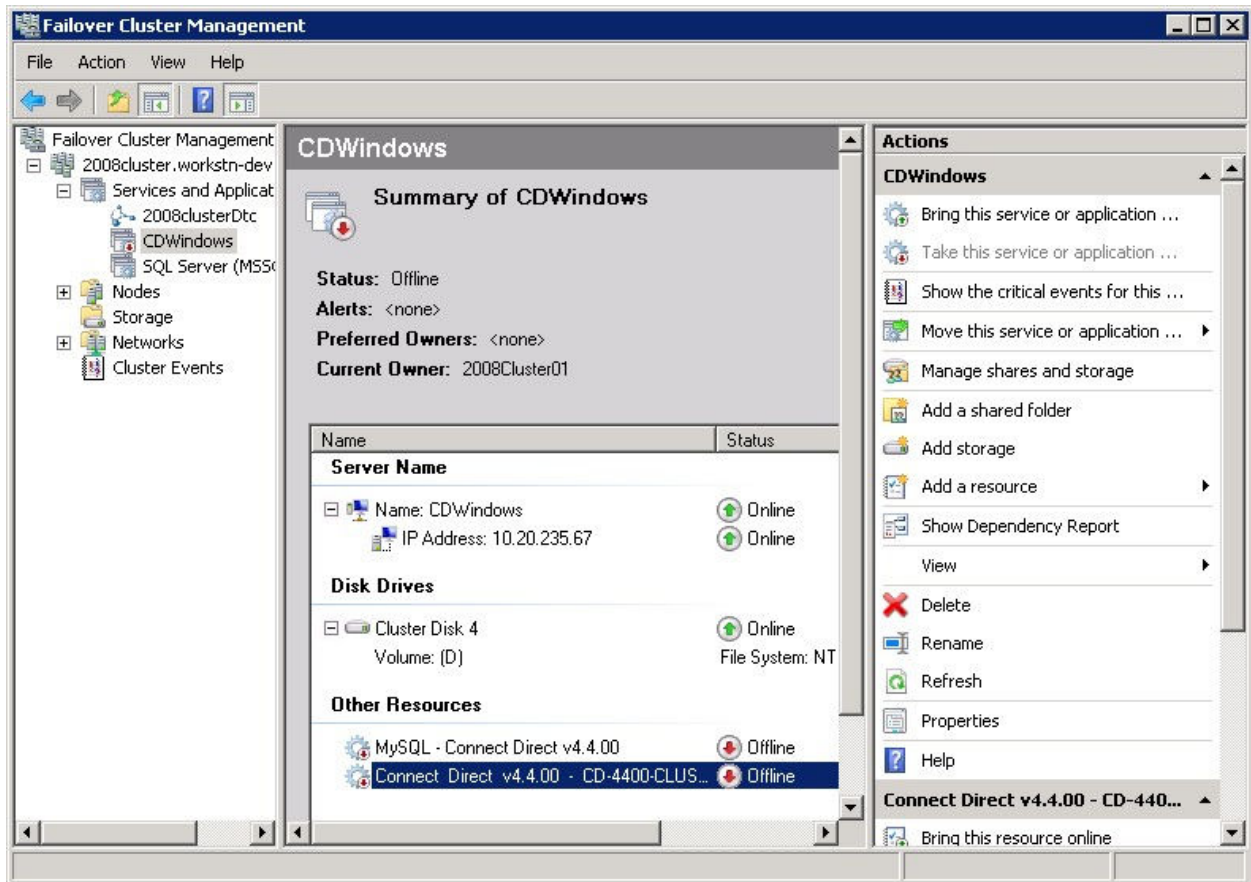
Click "Add" and replicate the Connect:Direct registry key "SOFTWARE\Sterling Commerce\Connect:Direct for Windows NT\v4.4.00\<node name>".



Click "OK" to complete the service configuration.

That completes the Connect:Direct for Windows portion for the Failover Cluster Management.

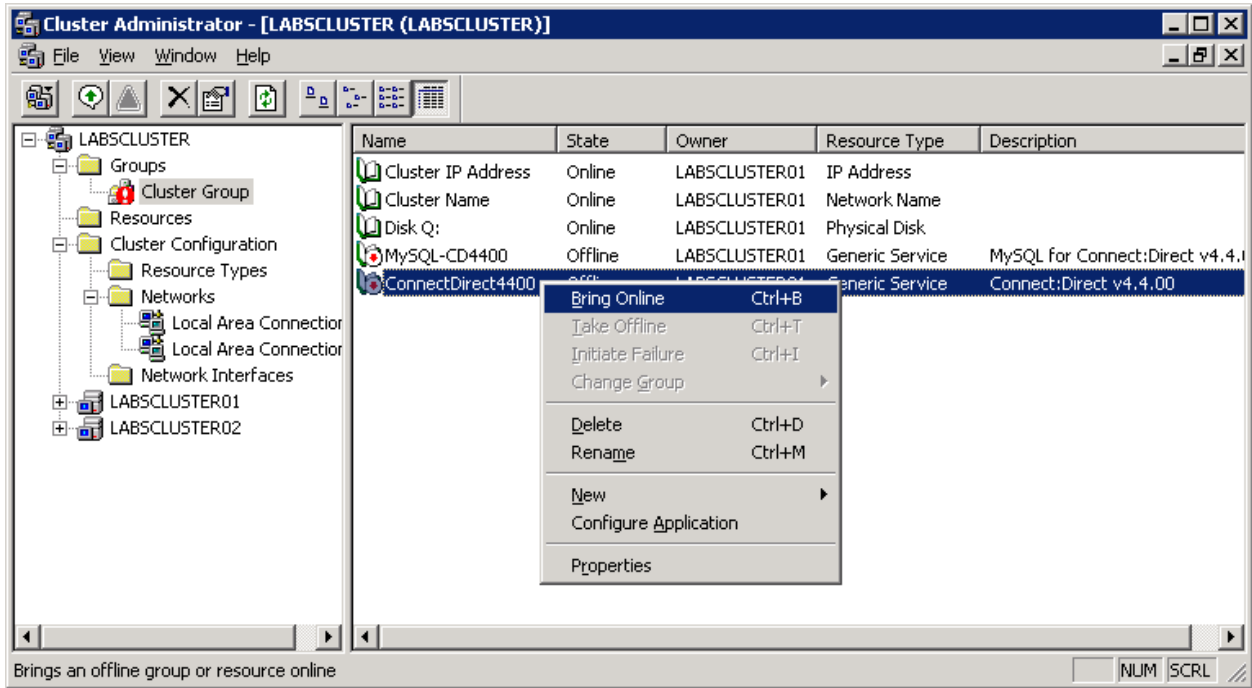
The "CDWindows" service group should look like this.



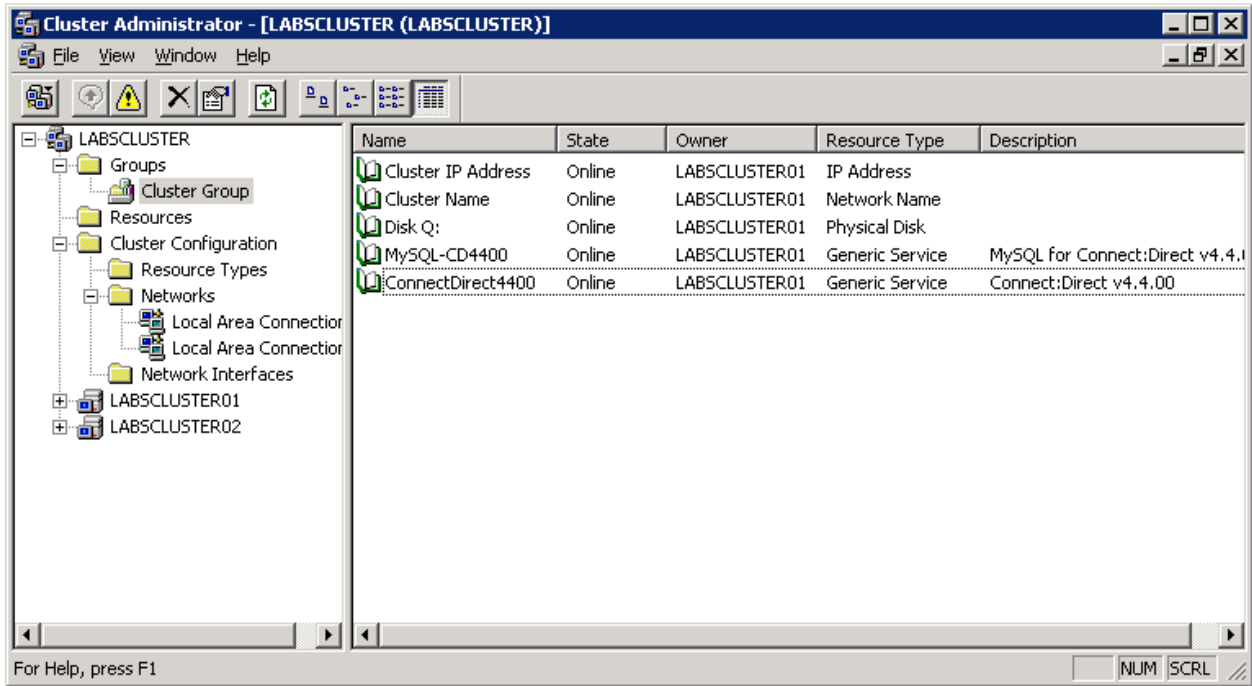
8 Verifying the Installation

To verify the installation is correct, bring the resource associated with Connect:Direct for Windows online. This will automatically bring the MySQL resource online if you are using MySQL.

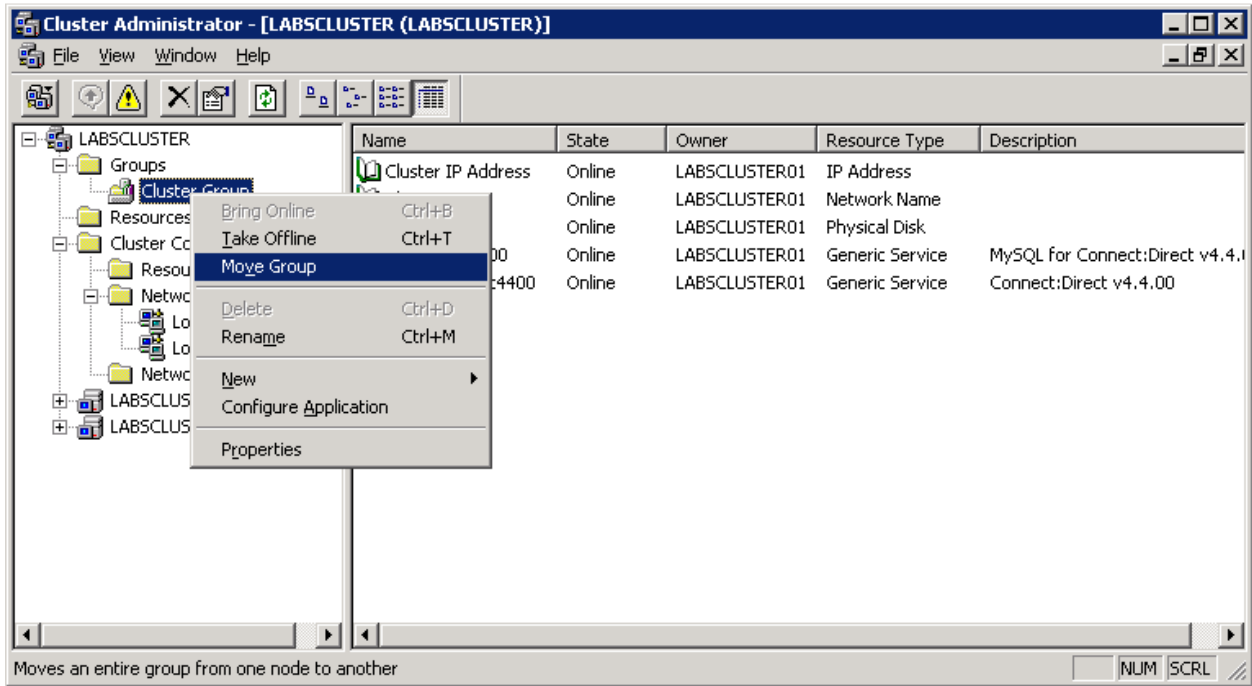
8.1 Verifying on Windows Server 2003



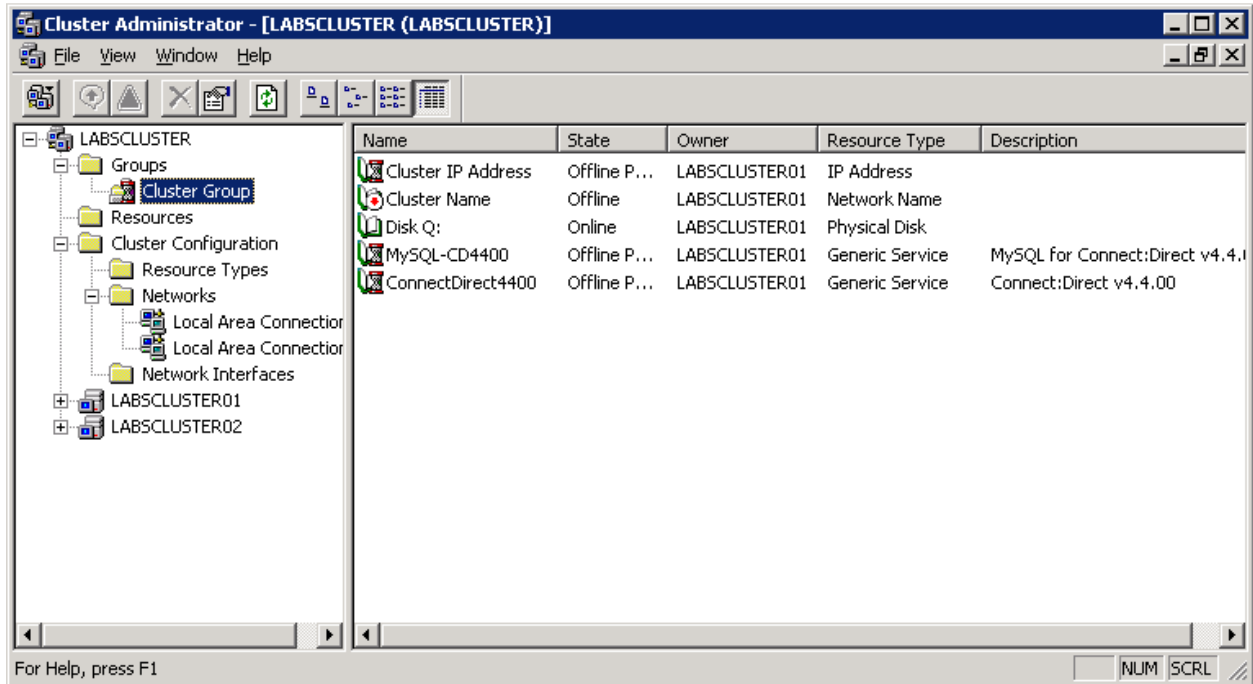
The Connect:Direct for Windows and the MySQL resource are both online.



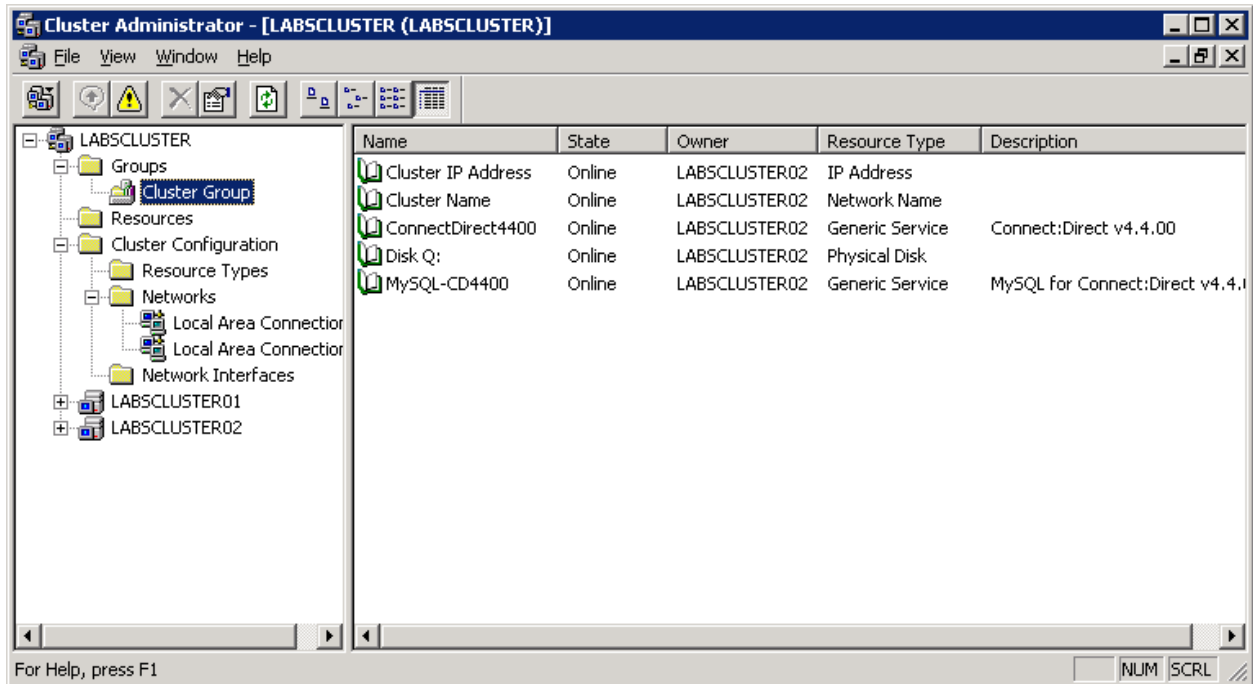
Now move the Cluster Group to one of the other cluster nodes.



The Cluster Group move is in progress.

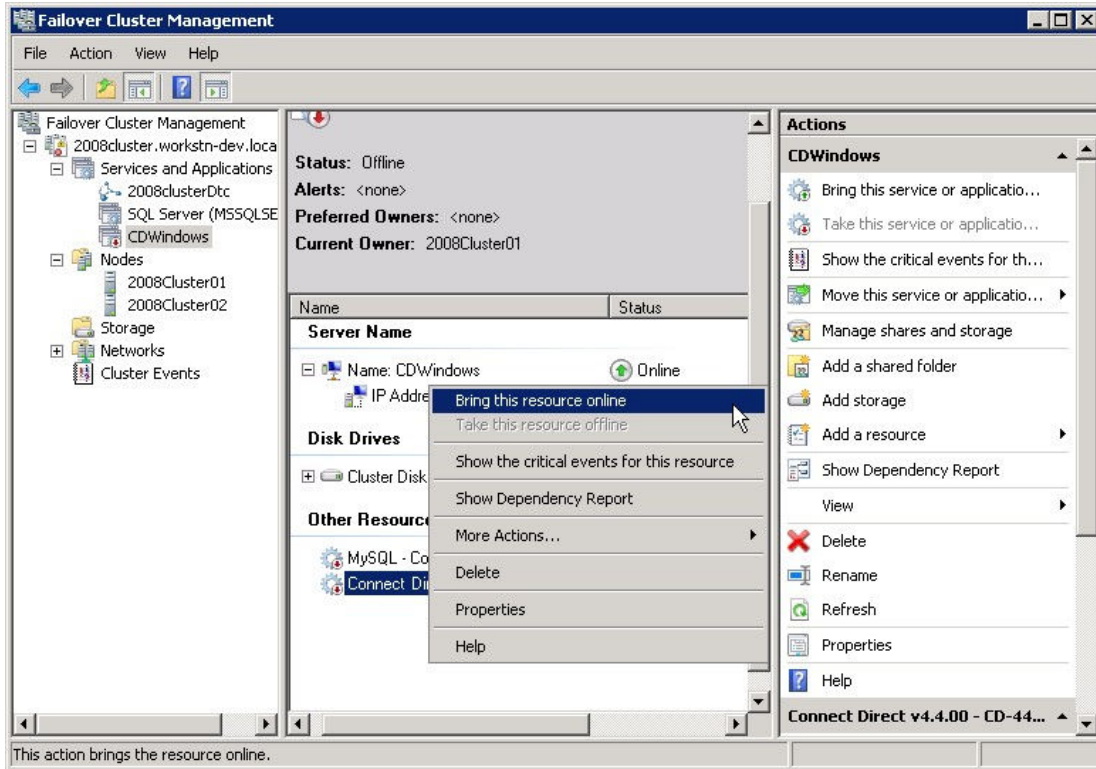


The Cluster Group was successfully moved to the second cluster node.

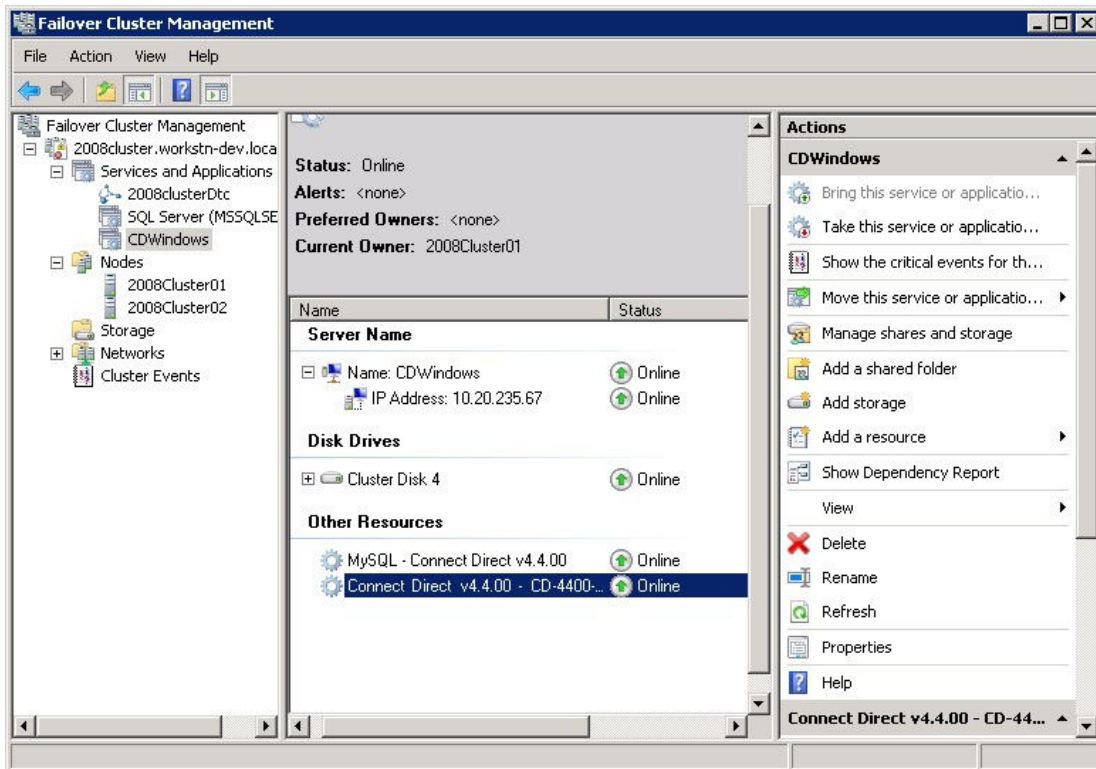


Connect:Direct for Windows should now successfully run in the cluster environment and automatically switch to backup cluster nodes in the event of a failure on an active node.

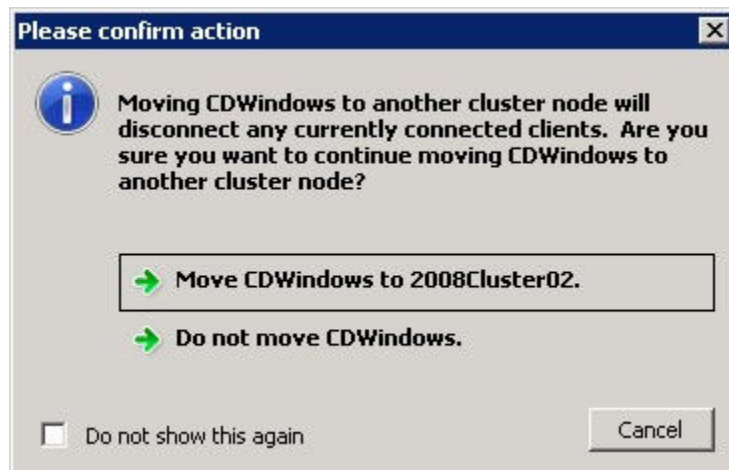
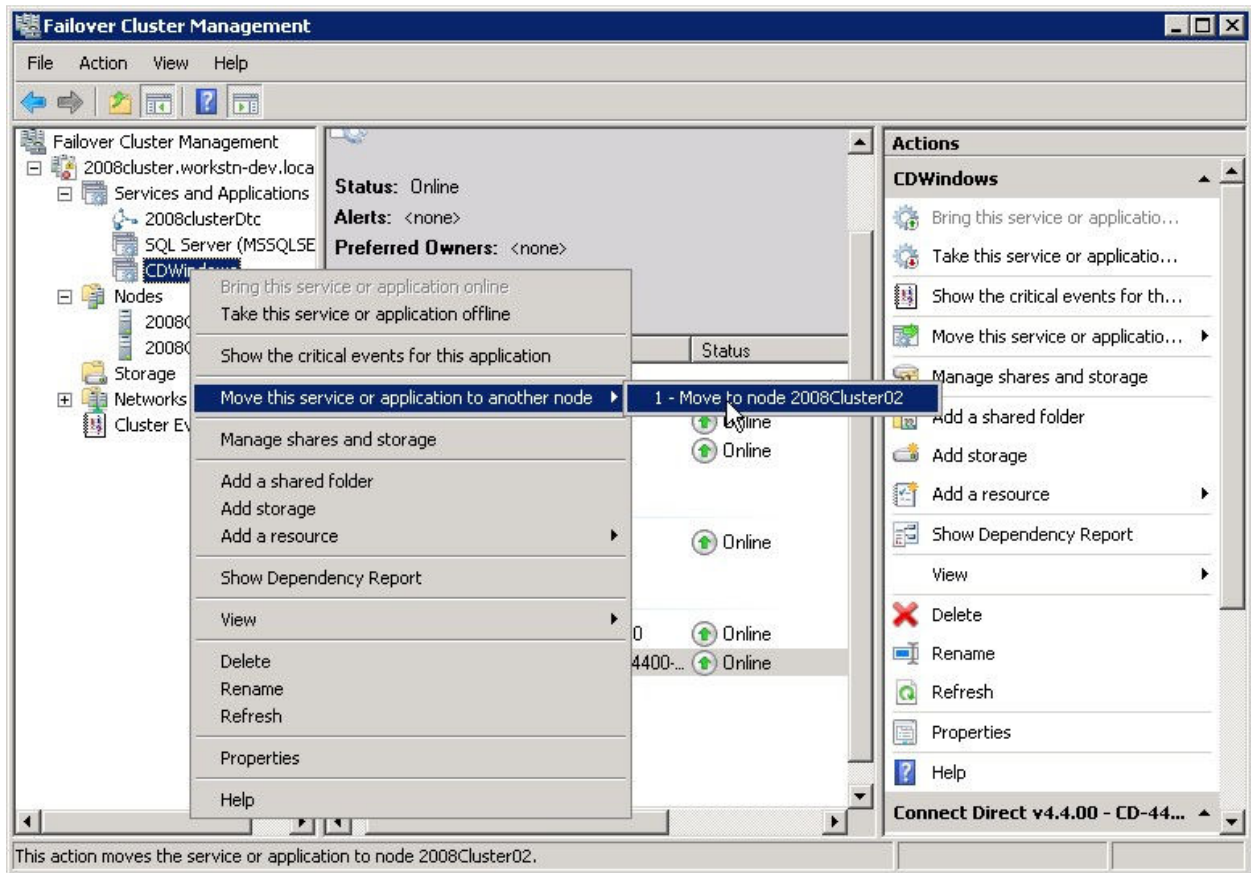
8.2 Verifying on Windows Server 2008



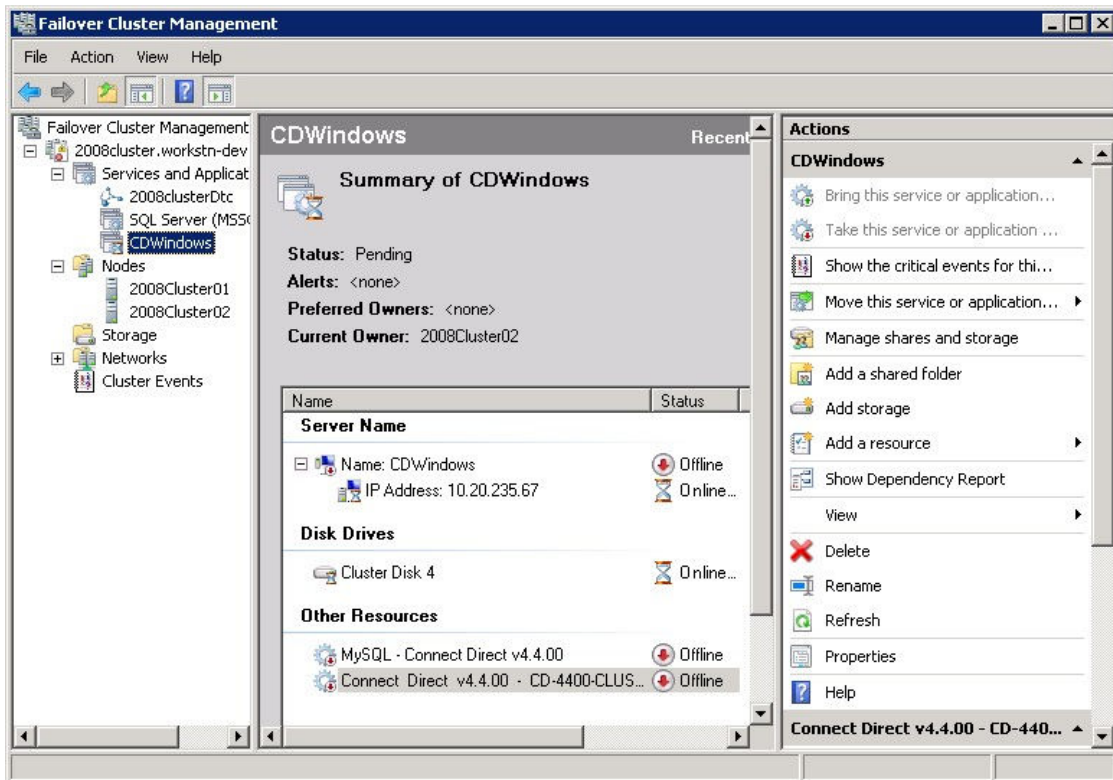
The Connect:Direct for Windows and the MySQL resource are both online.



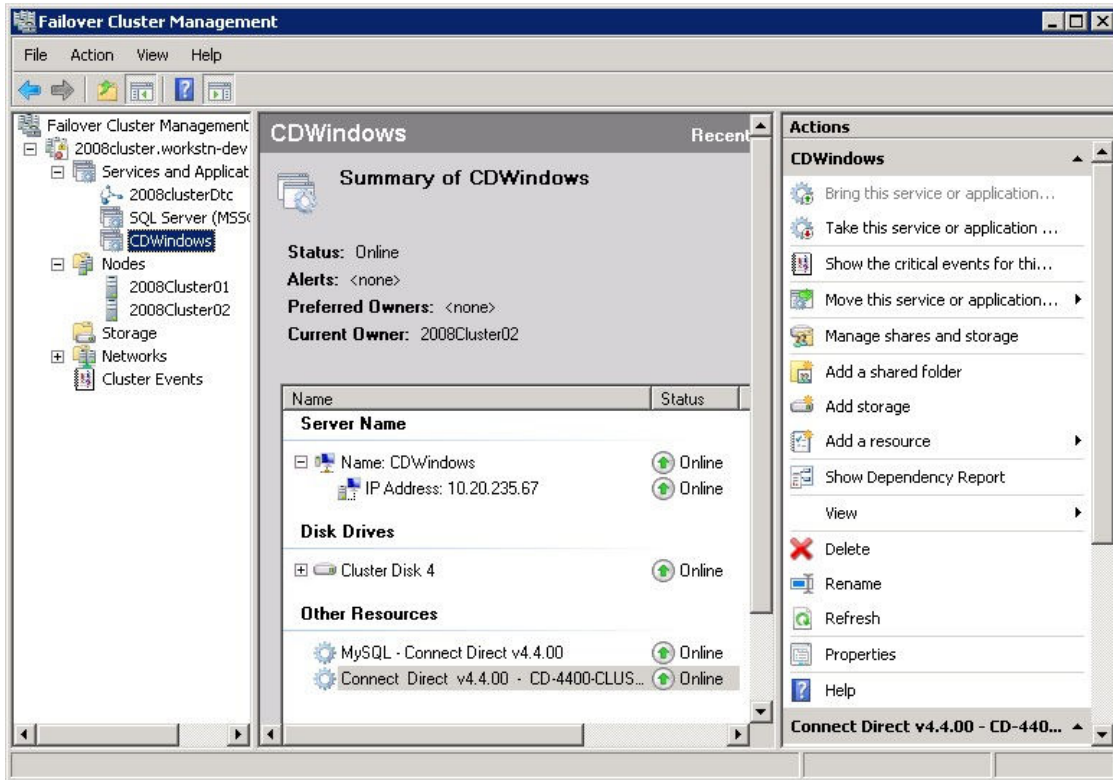
Now move the Cluster Group to one of the other cluster nodes.



The Cluster Group move is in progress.



The Cluster Group was successfully moved to the second cluster node (here: 2008Cluster02).



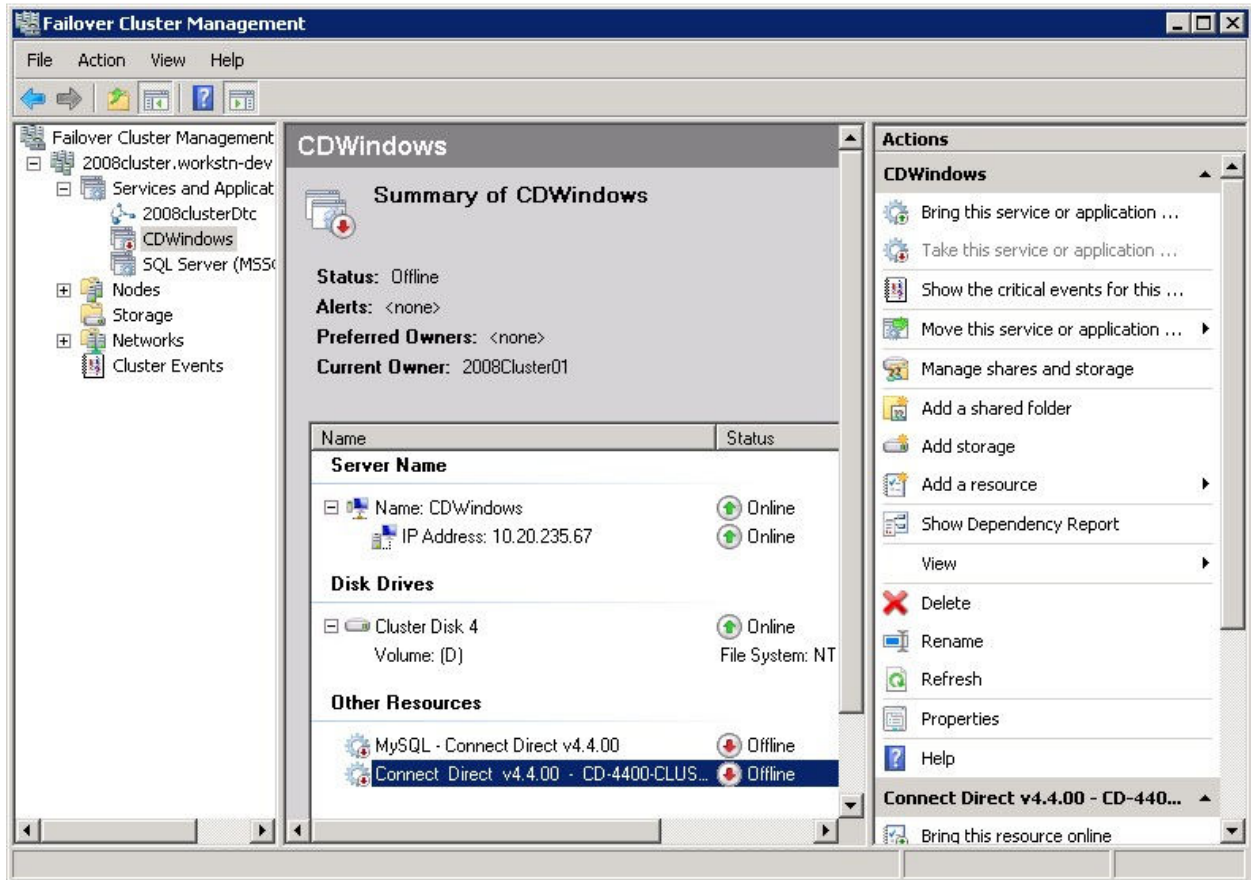
Connect:Direct for Windows should now successfully run in the cluster environment and automatically switch to backup cluster nodes in the event of a failure on an active node.

9 Applying Maintenance

It is recommended to apply the latest maintenance available for Connect:Direct for Windows. A maintenance patch delivers a subset of files that contain fixes and enhanced features. Patches are provided as Setup files (.EXE), for example CDWin4400Patch063.exe. See the *How to Apply Patches* whitepaper available from the Customer Center at <https://customer.sterlingcommerce.com> for more details.

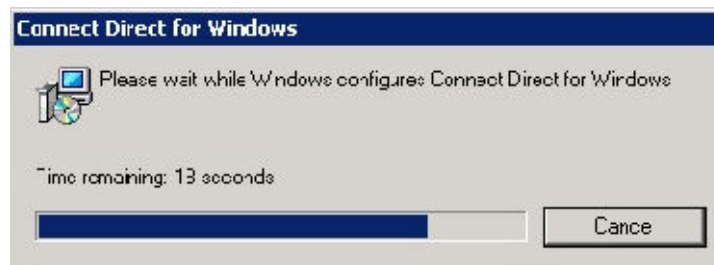
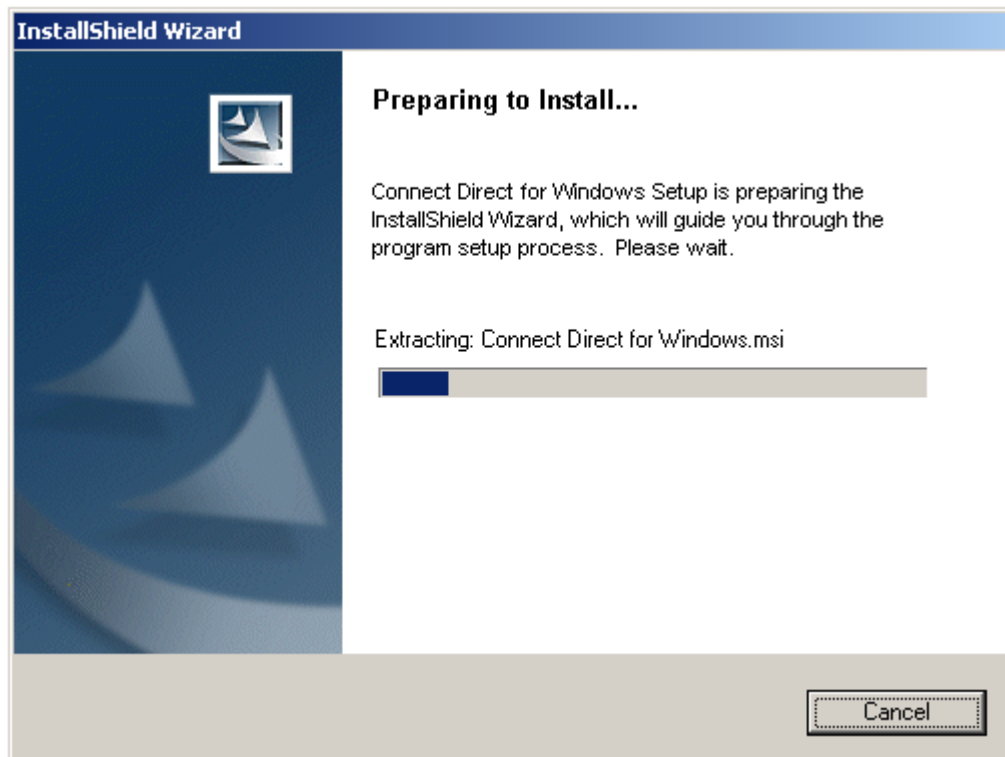
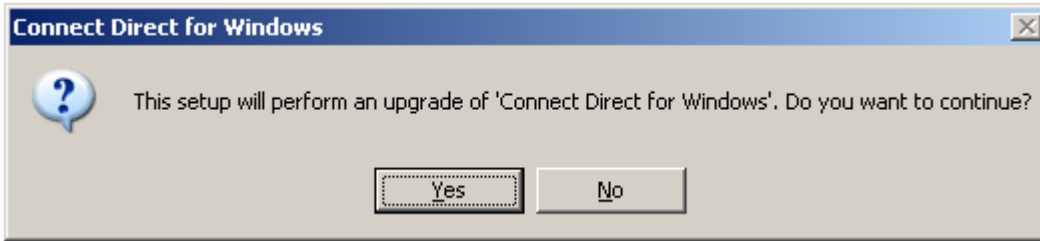
To successfully apply a Connect:Direct for Windows patch in a cluster environment please follow these step-by-step procedures **on each cluster server**:

- Move the Connect:Direct Windows Cluster Group to the initial cluster server, so that all resources associated with Connect:Direct for Windows are available to this first cluster node.
- In the Cluster Management software, take the Connect Direct v4.4.00 resource offline. Also, if you are using MySQL as the database for Connect:Direct, you must take its resource offline too.

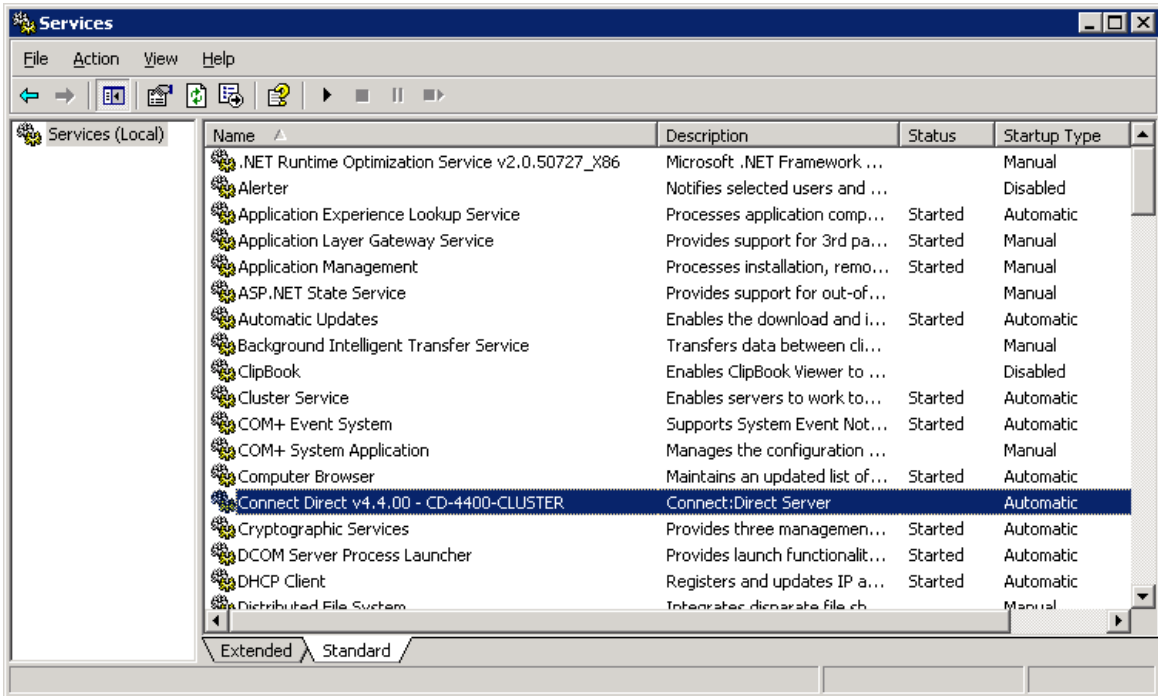


- It is recommended to stop the SNMP Service manually before applying a patch to avoid a potential reboot. See the *How to Apply Patches* whitepaper for more details.

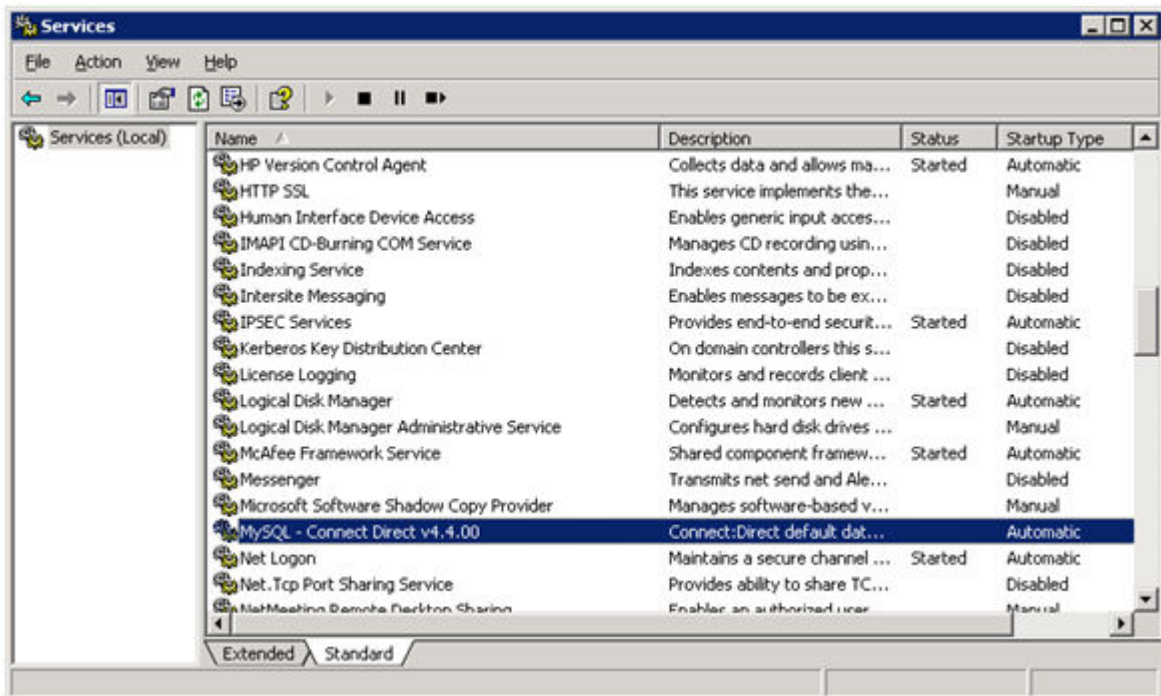
- Run the patch setup file and follow the instructions.
Windows Server 2008: Use the “Run As Administrator” (RAA) feature to launch the patch setup file.



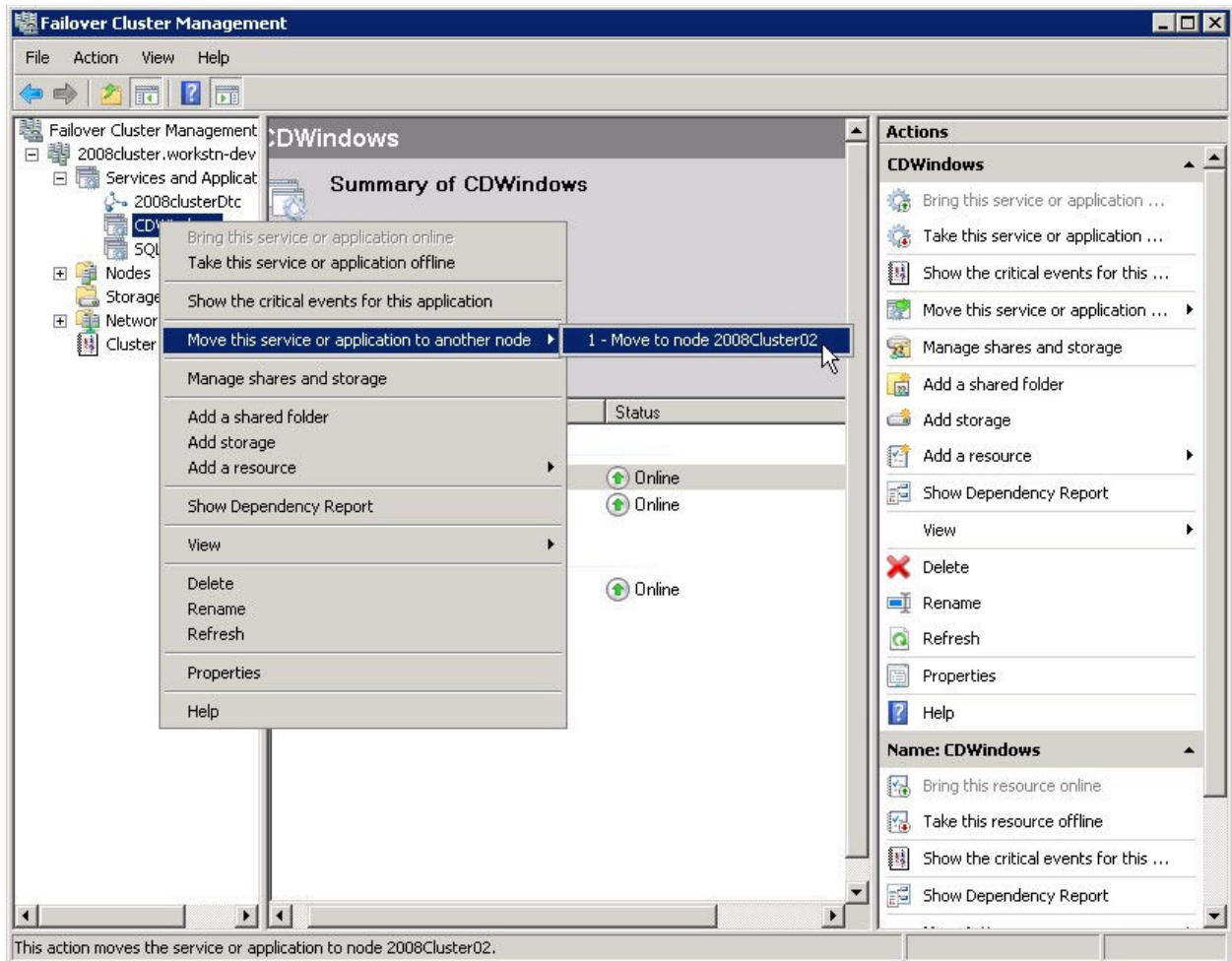
- After the patch installation has completed, you **must manually stop** the Connect:Direct Service on using Microsoft's Service Control Manager on this cluster server, before you can proceed with the next cluster server.



Also, if you are using MySQL as the database for Connect:Direct, you must stop its service.



- Move the Cluster Group to the next cluster server and repeat the steps above.



After the patch has been applied on all cluster servers, you can bring the Connect:Direct v4.4.00 Service online again. This will also bring the MySQL as online, if required.

10 General Information

Special Considerations

- When configuring a netmap entry or node entry for the Connect:Direct for Windows Requester, etc. be sure to use the Cluster's Virtual IP address and not the real IP address of the machine.
- When a Connect:Direct for Windows contacts another Connect:Direct remote node, the real IP address of the machine is used instead of the Cluster's Virtual IP. Use the **outgoing.address** option in Connect:Direct for Windows set to the Cluster's Virtual IP address to force it's use, or use the **node.check** option in Connect:Direct to exclude address checking on Windows and **netmap.check** to exclude netmap node and address checking on all other platforms.

11 Additional Web Sites

For more information on the Cluster Service Installation, Architecture, etc. see:

<http://www.microsoft.com/windowsserver2003/enterprise/clustering.mspx>