VERSION 3
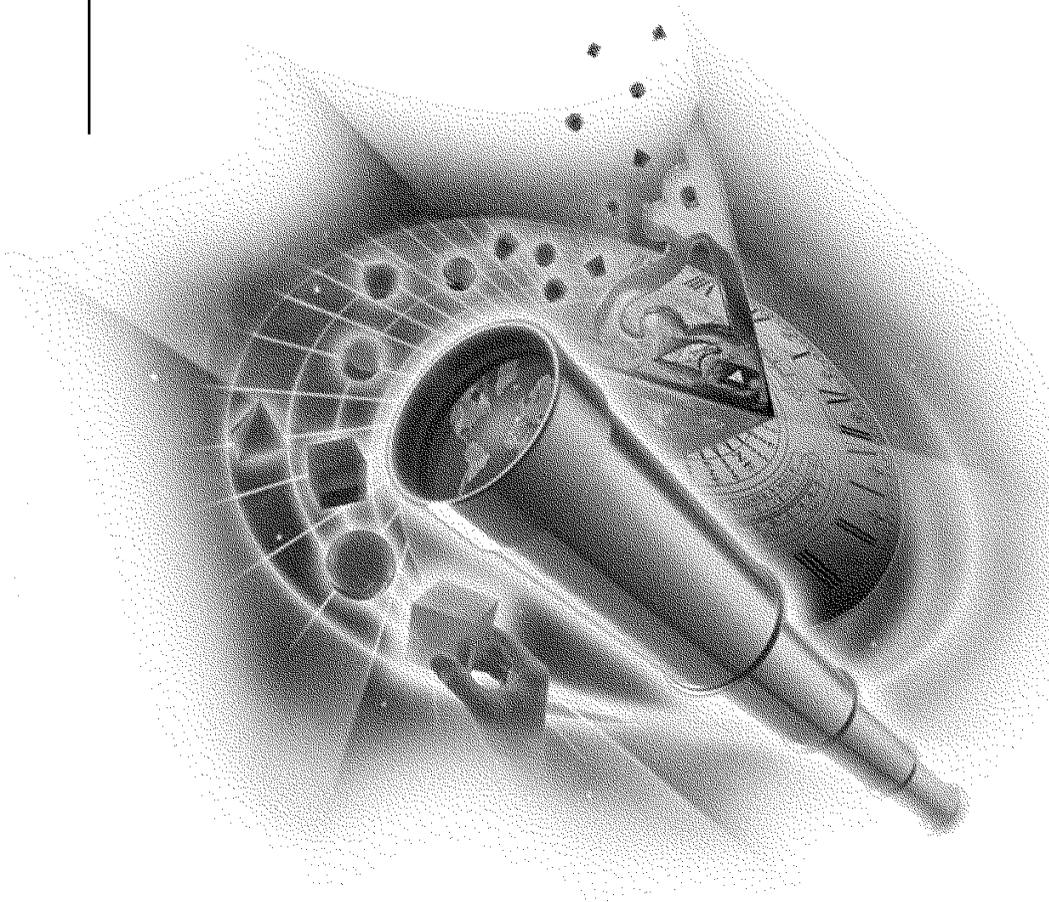
Integrating with

NetWare Cluster Services

ZENworks™ for Desktops

POLICY-BASED MANAGEMENT POWERED BY NDS® eDIRECTORY™

Novell®

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Solutions for ZENworks for Desktops

About This Guide

This *Solutions* guide contains information on a variety of subjects related to using ZENworks™ for Desktops (ZfD). The information may fit the needs of customers whose networking environment demands specialized interoperability between ZfD and other software.

This document is designed to be expandable. As customers ask Novell for a ZfD interoperability solution, the solution is tested in Novell testing labs and documented here. Currently, the document includes the following information:

- Chapter 1, "Using ZENworks for Desktops 3 with NetWare Cluster Services," on page 9

1 Using ZENworks for Desktops 3 with NetWare Cluster Services

This document contains information that will help you understand the tasks necessary for successfully installing and configuring Novell® ZENworks™ for Desktops 3 (ZfD) components in a NetWare® Cluster Services™ (NWCS) environment. The topics include:

Installation Prerequisites

Before you install and configure ZfD to run with NWCS, make sure that all of the hardware and software requirements for the respective products are met, including:

❑ At least two NetWare 5.*x* servers where NWCS can be installed

❑ NWCS installed and running on the NetWare servers that will be part of the cluster

❑ A shared disk volume created and cluster-enabled (this is called a virtual server)

For more information on cluster-enabling shared volumes, see the NetWare Cluster Services documentation (http://www.novell.com/documentation/lg/ncs/docui/index.html).

In addition to these prerequisites, you must make other preparations before you can install ZfD components on a cluster, including:

Authenticating to Cluster Nodes

Before you run the ZfD installation program on each individual server (also called a node) in the cluster, you must authenticate to the nodes that service the NWCS virtual server. Authentication to each node facilitates updating that node with the software required by ZfD.

HINT: It is necessary to authenticate only to those nodes that do not appear in the NetWork Neighborhood window.

To authenticate to each node:

1 From a Novell Client™ login, use the Admin user and password to log in to the NWCS virtual server.

2 Browse the NDS® tree where the cluster nodes are located.

3 Right-click a node object > click Authenticate.

4 Enter the user account (probably Admin) and password necessary to authenticate.

Preparing Cluster Nodes for ZfD

Before you run the ZfD installation program on each individual node in the cluster, you must update each node to accept the ZfD installation. This involves four procedures:

Upgrading Each Node to ConsoleOne 1.2c.6

ConsoleOne™ 1.2c.6 (or later), included on the ZfD *Companion CD*, must be installed on each cluster node for ZfD to work properly. For more information,

see Obtaining and Installing ConsoleOne in Typical Install and Setup in *Getting Started*.

Unloading Java on Each Node

To avoid an error message displayed by the ZfD installation program if Java is running on the server (that is, the cluster node), you should unload Java before you begin the ZfD installation there. To do this, you need to have System console access to each servicing node. At the system console for each node, enter the following command:

unload java

Obtaining and Setting Up CSVBIND on Each Node

The Cluster Virtual Server Bindery (CVSBIND) utility advertises cluster virtual servers in the bindery and supports access to cluster volumes through a UNC pathname. Because the ZfD Workstation Inventory component uses UNC paths to roll up its data, CVSBIND must be set up before you install Workstation Inventory. This section includes the following topics:

- "Obtaining CVSBIND" on page 11
- "Setting Up CVSBIND" on page 11
- "Using CVSBIND" on page 12

Obtaining CVSBIND

To obtain CVSBIND, visit the Novell Support Web site (http://support.novell.com/cgi-bin/search/tidfinder.cgi?2957434) and download the CVSBIND self-extracting .ZIP file to the directory where you want to extract the files. Double-click the CVSBIND.EXE to extract the following files:

- CVSBIND.NLM
- CVSBIND.TXT
- CVSBIND_README.DOC

Setting Up CVSBIND

To set up CVSBIND:

1 Down the cluster by entering the following command at the system console of any node in the cluster:

cluster down

2 Unload NWCS by entering the following command at the system console of each node in the cluster:

uldncs

3 Copy CVSBIND.NLM to SYS:\SYSTEM on each server in the cluster.

4 Add commands to load and unload CVSBIND by editing the LDNCS.NCF (load NWCS) and ULDNCS.NCF (unload NWCS) files in the SYS:\SYSTEM directory.

    4a Edit LDNCS.NCF by adding the following command

    cvsbind

    after the cmon command, but before the cluster join command.

    4b Edit ULDNCS.NCF by adding the following command

    unload cvsbind

    after the cluster leave command, but before the unload cmon command.

5 At the system console of each node in the cluster, enter the following command to restart the cluster:

ldncs

Using CVSBIND

CVSBIND.NLM supports commands that can add or delete bindery service entries in the SLP namespace to emulate the NetWare bindery.

The commands are implemented from the cluster volume resource load and unload scripts. You must edit the scripts and add the commands—including the name of the NWCS virtual server and its corresponding IP address—so that the Service Location Protocol URL service (bindery.novell) can emulate the bindery.

The command syntax is similar to the NUDP ADD and NUDP DEL commands already found in the scripts:

cvsbind add *SERVER_NAME IP_address*

cvsbind del *SERVER_NAME IP_address*

The simplest way to add the commands to the scripts is to copy and paste the appropriate NUDP command and substitute CVSBIND for NUDP.

Here is an example of the edited cluster volume resource load script:

```
nss /activate=TESTVOL

mount TESTVOL VOLID=254

trustmig TESTVOL watch

CVSBIND ADD CLUSTER_TESTVOL_SERVER 10.10.10.10

NUDP ADD CLUSTER_TESTVOL_SERVER 10.10.10.10

add secondary ipaddress 10.10.10.10
```

Here is an example of the edited cluster volume resource unload script:

```
del secondary ipaddress 10.10.10.10

NUDP DEL CLUSTER_TESTVOL_SERVER 10.10.10.10

CVSBIND DEL CLUSTER_TESTVOL_SERVER 10.10.10.10

trustmig TESTVOL unwatch

dismount TESTVOL /force

nss /forcedeactivate=TESTVOL
```

HINT: The CVSBIND command is not case-sensitive but the server name should be entered in upper-cased letters.

You can inspect the SLP namespace with the following console commands:

```
display slp services

display slp attributes service:bindery.novell:
```

Installing the Novell Client on the ZfD Installing Workstation

You must install ZfD from a workstation where the ZfD version of the Novell Client has already been installed. For more information about installing the appropriate client, see Obtaining and Installing Novell Clients in Typical Install and Setup in *Getting Started*.

Installing ZfD Components in the Cluster

Because of some limitations of the current ZfD installation procedure for installing in a cluster environment, you must change the ZfD installation procedure to account for the install location of ZfD files, the ZfD Inventory

database mechanism and service, and the behavior of Novell Clients required for ZfD.

To install ZfD in a network configured with NWCS:

1 From a network workstation configured with the proper Novell Client, log in as Admin to the NDS tree where your cluster resides and map a drive to a previously configured cluster node.

> **IMPORTANT:** Make sure that this workstation and all other administrative workstations are not running ConsoleOne while the ZfD installation is running.

2 At the workstation, insert the *ZENworks for Desktops* program CD.

The WINSETUP.EXE program will autorun. If it does not autorun, run it from the root of the CD.

3 Click English > Install ZENworks to launch the Novell Installation Service (NIS) program.

> **HINT:** You have the option of clicking Back to change your install preferences at any time while the NIS setup program is running.

4 Click Next to display the End User License Agreement for the ZfD software > read the agreement > click Accept if you agree with the terms of the license and the limited warranty.

If you do not agree with the terms of the software agreement, do not install the software.

5 In the Install Prerequisites screen, check to see that the cluster node to which you are installing meets the minimum requirements listed > click Accept when you have read the list.

6 In the ZENworks Install Types dialog box, click Custom > Next.

7 In the Components dialog box, check the ZfD components that you want to install > click Next.

8 In the ZENworks Part Selection dialog box, check the parts you want to install, or uncheck the parts you don't want to install (files, schema extensions, NDS Objects).

9 In the ZENworks List of Trees dialog box, click the name of the NDS tree where the NWCS cluster was previously installed.

10 In the ZENworks List of Servers dialog box, check the name of the node or nodes that currently service your virtual server.

11 In the Inventory Database Server Selection dialog box, select the virtual server where you want to install the ZENworks Inventory database (you can also choose not to install the database at this time) > click Next.

If you choose to install the Inventory database, a subsequent dialog box will be displayed where you can choose the server volume on the virtual server where you want to install it.

12 In the Languages dialog box, click the language of the files that you have chosen to be installed to the server > Next.

HINT: English is chosen by default and must be installed in addition to any other language you choose.

13 In the Automatic Workstation Import Management dialog box, select the Import (or Import/Removal) role for all of the servers where you are installing ZfD that will be part of the cluster > click Next.

All of the servers participating in the cluster should have exactly the same role for Automatic Workstation Import. You should also make sure that the HOSTS file on the workstations being imported points to the IP address of the virtual server.

For more information about server roles in Automatic Workstation Import, see Installing Automatic Workstation Import and Removal in Automatic Workstation Import in *Deployment*.

14 In the Inventory Server Roles dialog box, select the assignment you want to give to each of the inventory servers you have created > click Next.

For more information about server roles in Workstation Inventory, see Assigning the Roles for the Server in Workstation Inventory in *Getting Started*.

15 In the ScanDir Volume dialog box, select a volume of the virtual server where you want the scan data (.STR) files to be stored.

15a If you previously chose to install the database, you will be prompted to enter a unique site ID and name on the Site ID for Database dialog box.

16 Click Next to continue.

17 In the Summary dialog box, review the list of the products to be installed and the disk space that each product will consume when installed > click Finish to begin the installation process.

Configuring ZfD Components After Installation

After you have completed the ZfD installation, you can continue preparing for using ZfD in the cluster by completing various other configuration tasks, including:

- "General Configuration Procedure" on page 16
- "Configuring Application Management" on page 16
- "Configuring Workstation Inventory" on page 16

General Configuration Procedure

During the ZfD installation, some files are copied to the SYS:PUBLIC directory of the server where ZfD is installed. These ZfD files must reside on the shared disk volume for ZfD to function properly with NWCS. To avoid problems after the installation, copy the entire SYS:PUBLIC directory to the shared disk volume and run all ZfD components from that volume.

Configuring Application Management

Application Object Templates (AOTs) must be stored on the shared disk volume. Some AOTs are installed automatically by ZfD. You must move these AOTs to the shared disk volume and update their SOURCE_PATH macro to point to the shared disk volume. For more information about modifying Application object macros, see Application Object Settings in *Administration*.

Configuring Workstation Inventory

Of all ZfD components compatible with NWCS, Workstation Inventory requires the most careful configuration for use in a NWCS environment. The post-installation configuration consists of several tasks, including:

- "Configuring the Inventory Database Object" on page 17
- "Modifying the Sybase Startup File" on page 17
- "Configuring the Inventory Server" on page 17
- "Configuring the Inventory Server Property File" on page 18
- "Launching Scanners from the Shared Disk Volume" on page 19
- "Support Pack Installation in a Cluster Setup" on page 20

Configuring the Inventory Database Object

If you chose to install the Sybase* database component during the ZfD installation, the installation program created a Database object (ZfDInventoryDatabase) and configured the properties of the object.

If you are maintaining the Inventory database in Oracle*, ensure that you have created the Database object and configured the properties. For more information, see Configuring the Policies for the Database in Workstation Inventory in *Getting Started*.

To configure the Database object for cluster environment:

1 In ConsoleOne, right-click the Database object > click Properties > click ZENworks Database.

2 Browse for the DN (NCP server object) of the virtual server or specify the IP address of the virtual server > click OK.

Modifying the Sybase Startup File

To modify the Sybase startup file after installation:

1 Edit the MGMTDBS.NCF file, found in the SYS:\SYSTEM directory on the server to modify the IP address of the server. You should specify the IP address of the virtual server.

```
load SYS:\zenworks\Database\dbsrv7  -gn 50 -c 32M -tl 300
-ti 0 -m  -n ipaddress_of_the_server -x tcpip
Clustervol:\Zenworks\Database\mgmtdb.db
SYS:\Zenworks\Database\nal.db
```

2 Copy the MGMTDBS.NCF file from the SYS:\SYSTEM directory to other servers.

Configuring the Inventory Server

To configure the Inventory server after ZfD installation:

1 Edit the AUTOEXEC.NCF file on the server.

The Workstation Inventory installation adds entries to the server's AUTOEXEC.NCF file that load certain ZENworks services. You must comment the following lines in the file:

```
search add sys:\java\njclv2\bin
```

```
zfdstart.ncf
```

2 In the volume load script of the virtual server, append these entries:

```
search add sys:\java\njclv2\bin
```

```
zfdstart.ncf
```

3 In the volume unload script of the virtual server, add the following entry as the first entry in the file:

```
zfdstop.ncf
```

4 On the server, edit the ZFDSTOP.NCF file.

Ensure that the entries in this file follow this exact sequence:

```
Java -killzenWSImp
```

```
Java -killzenWSRem
```

```
Java -killzenWSInv
```

```
delay time_in_seconds
```

```
Unload imgserv
```

```
Unload dbsrv7.nlm <<y
```

where *time_in_seconds* is the delay time in seconds. We recommend that you set *time_in_seconds* to 8 seconds.

5 Comment out the following entries in the ZFDSTOP.NCF file:

```
;ZENworks for Desktops 3.0 Settings
```

```
; --Remove Inventory services and the Inventory database.
```

```
;StopSer *
```

```
;ZENworks for Desktops 3.0 DB Settings
```

Configuring the Inventory Server Property File

You must modify the inventory server's property file if you have defined the role of the server as one of the following:

Server Type	Server Property File
Root Server	ROOT_DB.PROPERTIES
Root Server with Workstations	ROOT_DB_WKS.PROPERTIES

Server Type	Server Property File
Intermediate Server	INT.PROPERTIES
Intermediate Server with Workstations	INT_WKS.PROPERTIES
Intermediate Server with Database	INT_DB.PROPERTIES
Intermediate Server with Database and Workstations	INT_DB_WKS.PROPERTIES

The server property file is located in the \PUBLIC\ZENWORKS\WMINV\PROPERTIES directory.

To edit the server property file, modify the Arguments entry in the [Receiver Service] section: Arguments = Cluster

Launching Scanners from the Shared Disk Volume

To launch the Scanners from the shared disk volume:

1 During the Workstation Inventory installation, some files are copied to the SYS:\PUBLIC\ZENWORKS directory of the server where ZfD is installed. These ZfD files must reside on the shared disk volume for ZfD to function properly with NWCS. Copy the files from \SYS:\PUBLIC\ZENWORKS to the shared disk volume.

2 The Inventory installation assigns the [Root] as a Trustee of the SYS:\PUBLIC\ZENWORKS directory with Read and File Scan rights. Ensure that this directory on the shared disk volume has the Read and File Scan rights permissions.

Configuring the Inventory Settings

Before following any of these tasks, ensure that you specify any one Inventory Service object for configuring inventory. You must also modify the CONFIG.PROPERTIES file of all other servers in the inventory setup to specify the DN of the Inventory Service object of the selected server that has been configured for inventory.

In the CONFIG.PROPERTIES file, modify the InventoryServiceDN entry for all other servers:

NDSTree=*tree_name*

InventoryServiceDN=*dn_of_the_inventory_service_object*

```
SingletonPort=65433
```

When you configure the selected Inventory Service object, these settings will apply to other servers.

To configure the Inventory Policy settings for the virtual server:

1 Ensure that you have configured the Inventory policy settings to the Inventory server. This is required before you configure the Inventory Policy settings for the virtual server.

2 From ConsoleOne™, right-click the Inventory Service object of the server > click Tools > click Configure Inventory for Cluster.

3 Fill in the following details:

NOTE: Support Pack 1

Virtual Server DN: Specify the DN of the virtual server.

Location of Inventory Scanner: Specify the directory location of the scanner executables (WINSCAN.EXE and NTSCAN32.EXE) on the virtual server. On an inventory server, these files exist in the SYS:\PUBLIC\ZENWORKS directory. Specify the directory location on the virtual server.

Scan Directory Path: Specify the directory for storing the scan data files (.STR) on the virtual server.

The SCANDIR directory is created in the specified location on the virtual server.

4 Click OK.

IMPORTANT: If you want to make any modifications to the Scan Directory Path, you must use the Configure Inventory for Cluster window. Do not modify the Scan Directory Path from the Inventory Service object property page.

NOTE: Support Pack 1

Support Pack Installation in a Cluster Setup

The installation program for ZfD3 Support Pack installs Workstation Inventory in a NWCS environment.

In a existing ZfD3 setup, if you have already installed the cluster snap-in (CLUSTER.ZIP) from the Novell ZENworks Cool Solutions Web site (http://www.novell.com/coolsolutions/zenworks/downloadables.html), before you run the ZfD3 Support Pack installation program, you need to delete the INVENTORYFORCLUSTER.JAR file from the

SYS:\PUBLIC\MGMT\CONSOLEONE\1.2\SNAPINS\ZEN directory. If this .JAR file exists, the Support Pack enhancements for Cluster will not be effective.

To setup Workstation Inventory in a Cluster setup:

1 Ensure that you have installed ZfD 3, and configured the inventory in the Cluster setup.

2 Follow the steps outlined in the ZfD 3 SP1 Readme for installing Workstation Inventory on the NetWare servers.

3 After the SP1 installation is completed on the servers, copy the Scanner executables (NTSCAN32.EXE and WINSCAN.EXE) from the PUBLIC\ZENWORKS directory to the shared disk volume on the virtual server. The directory location of the Scanner files should be the same directory as specified in the Configure Inventory for Cluster window.

Troubleshooting ZfD in a NWCS Environment

The purpose of this section is to identify issues that may arise with some of the ZfD components when they are installed in a clustering (NWCS) environment.

The following subsections are included:

◆

Troubleshooting Workstation Imaging

Problem: When the cluster-enabled volume is migrated to another node, a workstation currently pulling down or pushing up images loses its connection.

Explanation: When a workstation requests an image from the image proxy server (the virtual server), the workstation has, in effect, opened a session. When the cluster-enabled volume is migrated to another node, that session is disconnected.

Action: Restart the workstation imaging process from the beginning.

Error Messages Generated by the ConsoleOne Snap-In for Workstation Inventory and Clustering

The following sections contain detailed explanations of the error messages that may be generated while you are using the ConsoleOne snap-in for Workstation Inventory and Clustering:

NOTE: Support Pack 1

Unable to launch the configuring tool for Cluster environment.

Source:	Cluster snap-in
Severity:	Critical
Action:	Ensure that you have copied the cluster snap-in files in the correct directories. See the Readme for the Cluster snap-in for instructions.

Unable to update virtual server DN in NDS.

Source:	Cluster snap-in
Severity:	Critical
Explanation:	The inventory settings for the server are stored in NDS. This error occurs if the attributes cannot be written to NDS.
Possible Cause:	The network is down.
Action:	Ensure that the network is up and the network connections are active.
Possible Cause:	There may be a problem with NDS.
Action:	See the NDS documentation Web site (www.novell.com/documentation) for troubleshooting information about NDS problems.
Action:	Ensure that you have sufficient rights to modify the NDS attributes.

Unable to update scanner location in NDS.

Source:	Cluster snap-in
Severity:	Critical
Explanation:	The inventory settings for the server are stored in NDS. This error occurs if the attributes cannot be written to NDS.
Possible Cause:	The network is down.
Action:	Ensure that the network is up and the network connections are active.
Possible Cause:	There may be a problem with NDS.
Action:	See the NDS documentation Web site (www.novell.com/documentation) for troubleshooting information about NDS problems.
Action:	Ensure that you have sufficient rights to modify the NDS attributes.

Unable to update the scan directory path in NDS.

Source:	Cluster snap-in
Severity:	Critical
Explanation:	The inventory settings for the server are stored in NDS. This error occurs if the attributes cannot be written to NDS.
Possible Cause:	The network is down.
Action:	Ensure that the network is up and the network connections are active.
Possible Cause:	There may be a problem with NDS.
Action:	See the NDS documentation Web site (www.novell.com/documentation) for troubleshooting information about NDS problems.
Action:	Ensure that you have sufficient rights to modify the NDS attributes.

NOTE: Support Pack 1

The selected virtual server DN does not represent a cluster. Select a valid virtual server.

Source:	Cluster snap-in
Severity:	Critical
Explanation:	You can open the Configure Inventory Cluster window for any Inventory Service object. This error occurs if you have not selected a virtual server DN that represents a cluster.

Action: Select a virtual server to configure the inventory settings.

NOTE: Support Pack 1

Select a directory on the virtual server instead of volume.

Source: Cluster snap-in

Severity: Warning

Explanation: To configure the Inventory Policy settings for the virtual server, you must specify the SCANDIR directory for storing the scan data files (.STR) on the virtual server. The SCANDIR directory is created in the specified location on the virtual server.

This error occurs when the specified scanner location or the scan directory path in NDS contains the volume location instead of the directory location.

Action: Ensure that you specify a directory location on the virtual server.