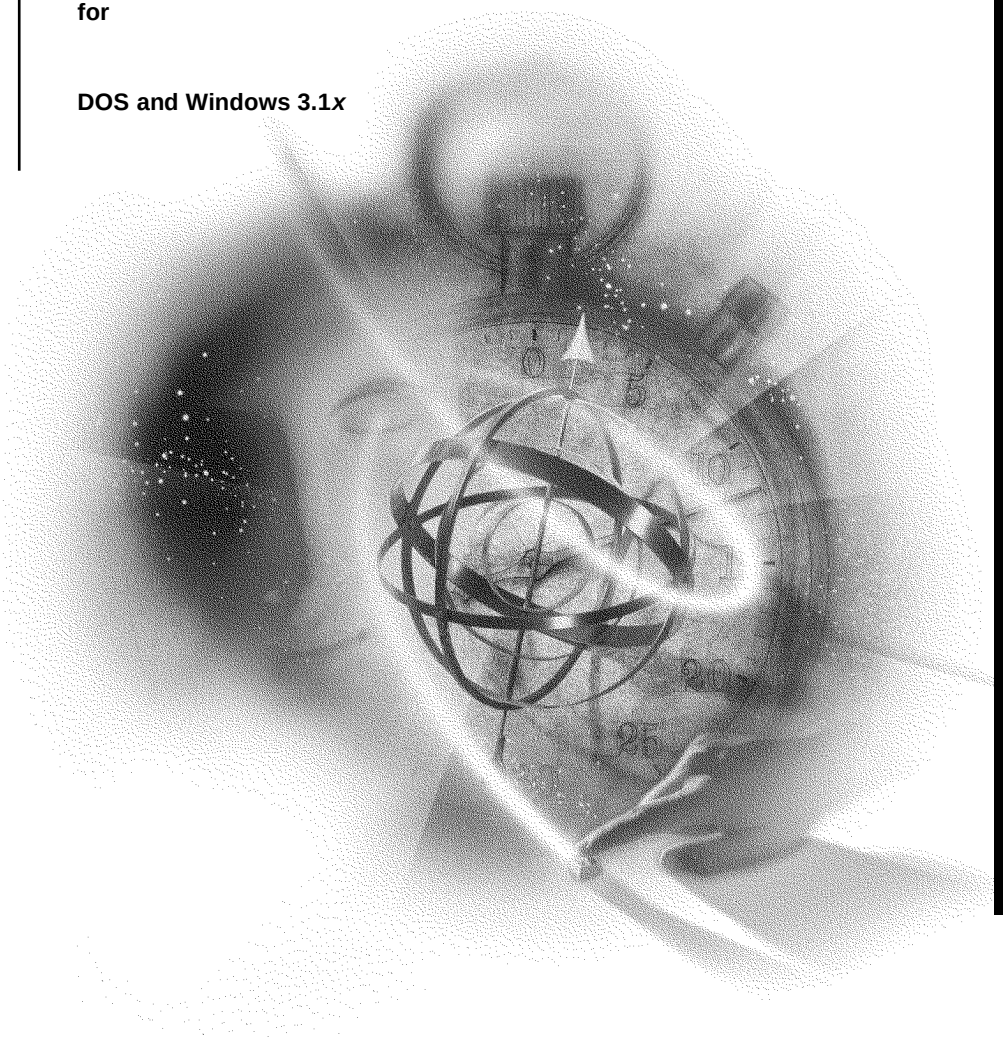
Novell Clients™

Novell Client

for

DOS and Windows 3.1*x*



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Novell, Inc.
122 East 1700 South
Provo, UT 84606
U.S.A.

www.novell.com

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Trademarks

Novell Client for DOS and Windows 3.1x Overview

Novell® Client™ for DOS and Windows* 3.1*x* is 32-bit software that enables computers running DOS and Windows 3.1*x* to access resources on a Novell network.

The Novell Client architecture, designed for robust connectivity and easy maintenance, provides network supervisors and users with many installation and configuration options. This allows you to choose the best setup for your network.

The Novell Client also includes several additional features that allow you to extend the power of the Client. Through Remote Access Services, you can access the Internet, dial out to bulletin boards, and dial in to the network. If you have users who dial in to the network, connect to other servers, or connect to the Internet through a telephone line, there are several options and components that you should consider.

Note: Search and print functionality for the HTML documentation is available only in 32-bit operating systems such as Windows 95 and Windows NT*.

chapter 1

Understanding

The Novell® Client™ for DOS and Windows* 3.1*x* has several features and options that allow you to customize the client for your network.

- "Client Features" on page 1 explains the basic features of the Client.
- "Protocol Options" on page 3 explains the protocol options available for connecting to NetWare® 3, 4, and 5 servers including IP-only, IPX™-only, and mixed environments.
- "Installation Options" on page 7 explains the options for installing over the network or on individual workstations.

Hint: If you encounter information you are not familiar with in the documentation, read the entire section before clicking links to other sections, because the links might lead to more indepth information on topics you are not interested in.

Client Features

Novell Client for DOS and Windows 3.1*x* is 32-bit software that enables computers running DOS and Windows 3.1*x* to access resources on a Novell network. The Client can connect to NetWare 3, 4, and 5 servers in an IP-only, IPX-only or a mixed IP / IPX environment.

The Novell Client architecture, designed for robust connectivity and easy maintenance, provides network administrators and users with many installation and configuration options. This allows you to choose the best setup for your network.

The Novell Client includes the following features:

- Detects changes in a workstation's network environment and automatically restores connections to the network without having to reboot when the relevant network service is restored.

- Caches frequently used data, such as file content and network information, resulting in less traffic on the network and faster response times on the client.
- Supports multiple Directory tree access and complete NDS™ access.
- Allows users to map drives, capture ports, and change passwords and synchronize with other servers when the current password expires.
- Uses 32-bit or 16-bit LAN drivers including 32-bit ODI™ LAN drivers that comply with the latest NetWare driver specifications, 16-bit ODI LAN drivers. For increased performance and stability, you should use a 32-bit ODI LAN driver when one is available for your workstation's network board.
- Uses the same Target Service Agent (TSA) to enable backup and restore on workstations using the NetWare DOS Requester™ software as on workstations using the Novell Client for DOS and Windows 3.1*x* software.

The Novell Client also includes several additional features that allow you to extend the power of the Client. Through “Remote Access Services” on page 8, you can access the Internet, dial out to bulletin boards, and to dial in to the network. If you have users who dial in to the network, connect to other servers, or connect to the Internet through a telephone line, there are several options and components that you should consider.

Additional Links

“Protocol Options” on page 3 explains the protocol options available for connecting to NetWare 3, 4, and 5 servers, including IP-only, IPX-only and mixed environments.

“Installation Options” on page 7 explains the options for installing over the network or on individual workstations.

Protocol Options

The Novell Client for DOS and Windows 3.1*x* can connect to NetWare 3, 4, and 5 servers including IP-only, IPX-only and mixed environments.

Important: The Novell Client for DOS and Windows 3.1*x* can connect to IPX-only, IP-only, or mixed networks. NetWare 5 IP-only servers must be running Compatibility Mode (scmd.nlm) and the network must have a Migration Agent on a NetWare 5 server.

Compatibility Mode allows IPX applications to function in IP-only networks. Compatibility Mode also allows you to communicate with services in IP-only networks if the Migration Agent is installed on any NetWare 5 servers. Compatibility mode is dependent on the Service Location Protocol (SLP) for its operation.

In addition to the protocols listed above, the Client also supports NetWare/IP™ and IP Gateway options. See "NetWare/IP Support" on page 3 and "IPX/IP Gateway" on page 4.

Additional Links

"Installation Options" on page 7
"Client Features" on page 1
"NetWare/IP Support" on page 3
"IPX/IP Gateway" on page 4

NetWare/IP Support

NetWare 4 includes NetWare/IP (NWIP). NWIP provides an IP solution for IPX-only networks but is not a native IP solution. If you are adding new IP-only NetWare 5 servers to your network, these servers will be pure IP and will not need NWIP.

Important: NetWare 5 supports pure IP connectivity. In order for NetWare 5 to communicate with an existing NWIP server, a NetWare 5 server with Compatibly Mode and a Migration Agent must exist in the network.

If you are not upgrading or adding NetWare 5 servers to your network, NWIP provides client workstation access to NetWare services over a TCP/IP network and provides the following support services.

- The Domain SAP/RIP Service (DSS) maintains two types of information required by NetWare servers and clients:
  - Service Advertising Protocol (SAP) information about the available NetWare services
  - Routing Information Protocol (RIP) information about routes between NetWare servers

  Once configured, the DSS automatically maintains this information and makes it available to all NWIP nodes. NetWare/IP servers and clients use DSS servers to obtain service and routing information.

- The Domain Name System (DNS) is a distributed database system used to locate computers in TCP/IP internetworks. NetWare/IP servers and clients use DNS to locate the DSS server.

If you choose to use NWIP on your servers, make sure to select it as an option when installing the Client.

Additional Links

"Client Features" on page 1
"Installation Options" on page 7
"IPX/IP Gateway" on page 4

IPX/IP Gateway

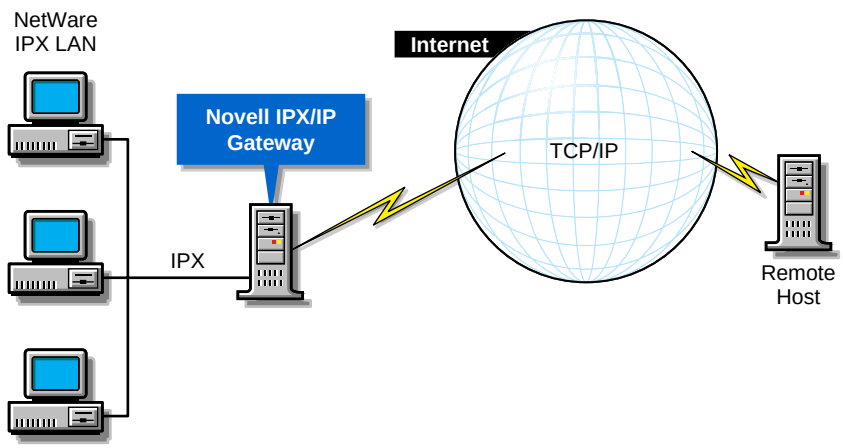
The Novell IPX/IP Gateway is server software that enables IPX-based NetWare LANs to connect to the Internet. The server then enables Novell Clients to use the Internet without having an individual IP address on the workstation. The Gateway also acts as a barrier between the intranet and the Internet, providing protection against unauthorized intrusion into your network.

The Novell IPX/IP Gateway alleviates the administrative difficulties of maintaining an IP address on each client workstation. IPX does not require a network administrator to assign network addresses manually. But TCP/IP requires that a number of items be configured individually for each workstation, such as the IP address, subnet mask, and the IP address of the default router. Because each workstation must have a unique IP address, administrators must keep accurate lists to avoid

address duplication. If duplication does occur, it can cause serious problems on the network that are difficult to diagnose and resolve.

With Novell IPX/IP Gateway, only the Gateway server uses an IP address. When clients request information from the Internet, the Gateway translates the request to IP and forwards the request to the Internet. The Gateway also translates IP responses into IPX data and sends the data to the appropriate client workstation on the NetWare network. This allows an IPX client to access the Internet without loading a TCP/IP stack.

IPX and IP actually perform similar functions in a network. An IP Gateway exploits the similarities of IP and IPX by replacing IP with IPX on the intranet, while using IP to communicate with the Internet. The LAN runs, in effect, over "TCP/IPX."



When the Novell IPX/IP Gateway is operating, the Gateway server uses the TCP/IP protocol to communicate with the remote host, but each client workstation uses IPX instead of IP to communicate with the Gateway server.

The IP Gateway client software uses an enhanced version of Windows Sockets (Winsock) that uses TCP/IPX in addition to TCP/IP. The IP Gateway client software supports Winsock by establishing and maintaining a connection with a Novell IPX/IP Gateway server. The standard implementation of Winsock is turned off and the NetWare implementation is turned on. You can revert to the original Winsock

using a utility called the Gateway Switcher which enables or disables the Novell Client's use of the Gateway.

Configuring the Client for IP Gateway

During the installation, select the IP Gateway option. Then, once the client is installed, users can specify a preferred Gateway server using the Gateway Switcher utility in the Client program group. If there are multiple Gateways installed on the network, users can configure a preferred IP Gateway server.

Attaching to the Preferred IP Gateway Server

If a preferred Gateway server is configured, the Gateway client attempts to attach to that Gateway server. If the specified Gateway server is not available because the server is down or all licensed connections are in use, the Gateway client searches for other Gateway servers in the following manner:

- Starting with the current NDS context, the client searches down the Directory tree for a Novell IPX/IP Gateway server.
- If no server is found, the client searches the bindery of the attached file server.
- If no server is found, the client queries for Service Advertising Protocol (SAP) broadcasts of the nearest Gateway server.

Note: There is no connection between the preferred file server and the preferred Gateway server. A user can be attached to file server A while using a Gateway server that resides on file server B.

Additional Links

"Client Features" on page 1
"Installation Options" on page 7
"NetWare/IP Support" on page 3

Installation Options

If you want to install client software on several workstations, installing over the network is easiest. If you are installing the client software only on a small number of workstations, or if the workstations are not yet connected to a network, you can install the client from a local drive.

Installing Over the Network

Installing over the network is the best option if you want to install several new clients or upgrade several existing clients. You can even modify the Windows 3.1*x* setup.ini file or the DOS install.cfg to limit or eliminate user input during installation. There are three different network installation methods:

- Automatic Client Upgrade (ACU) allows network administrators to set up and standardize the installation process. During installation, ACU automatically configures each workstation's client settings, thus virtually eliminating the need to configure individual workstations. See "Installing with ACU" on page 52.

- User-initiated installation allows network administrators to set up an installation procedure with little or no user intervention. Once users are notified of the installation procedure, they can begin installing whenever it is convenient. See "Installing from the Network" on page 64.

- Z.E.N.works™, or Zero Effort Networking, is an integrated set of products for managing workstations and user desktops while reducing the total cost of ownership. Z.E.N.works includes application management and distribution features and desktop configuration, management, and maintenance features. Application Launcher, a component of Z.E.N.works, lets you distribute applications to workstations and manage those applications as objects in the NDS™ tree. Users do not need to worry about workstation configurations, drives, ports, command line parameters, application source directories, or whether they have the latest upgrade. You, as the administrator, manage such issues easily and centrally from NetWare Administrator. For more information, see *Z.E.N.works Overview*.

  Note: In order to use Z.E.N.works, you must manage your network from a 32-bit workstation. Many of the Z.E.N.works powerful application and

desktop management features can be administered from a 32-bit workstation to a Windows 3.1*x* workstation.

Installing from a Local Drive

If you are installing the client software on a small number of workstations, or if the workstations are not yet connected to a network, you can install the client from CD-ROM. See “Installing from CD-ROM” on page 65

Additional Links

“Client Features” on page 1 .
“Protocol Options” on page 3 .

Remote Access Services

You can use the Novell Client software to access the Internet, dial out to bulletin boards, and dial in to the network. If you have users who dial in to the network, connect to other servers, or connect to the Internet through a telephone line, there are several options and components that you should consider:

- “Remote Access Dialer” on page 8
- “Corporate Dial-in Services” on page 10
- “Win2NCS” on page 11

Remote Access Dialer

The Remote Access Dialer enables you to connect to your network from anywhere in the world and work as you would in the office. Its various components work together to provide the tools necessary to connect to the network and work from various locations without losing the sense of being connected to the network. These features are installed by selecting the Novell Dial-in Services option during installation and can be accessed from the Client Control Panel in the Novell Client™ group.

Important: The Remote Access Dialer is available only through the Windows installation.

Dialer Assistant

The Dialer Assistant helps you dial in and connect to a network or an Internet service from different locations. You can use one of the dial-in services from your Phone Book. The connection can use a standard or ISDN modem or an ISDN bus adapter. It can be set up to use a telephone calling card.

Locations

The Novell Client maintains location-specific information in Location Profiles. For each location you work in, or for each networking environment in a location, you define properties that are stored in a location profile.

The Locations program allows you to set up location profiles and then select one when the workstation starts. The profile for the selected location contains such information about your working environment as your network login preferences, the connection device you use, and startup information.

Phone Book

The Phone Book contains dial-in services that each user creates or that were created centrally by a network administrator and then copied into the local Phone Book. Each dial-in service describes a connection. You can dial in to a server directly from the Phone Book, without having to go to the Dialer Assistant first.

Calling Card

If you use a modem to connect to the network over telephone lines, you might want to charge your calls to the calling card of a service provider that you have an account with. The Remote Access Dialer stores the information about your calling cards and accesses it when you need it.

Additional Links

“Corporate Dial-in Services” on page 10
“Win2NCS” on page 11
“Client Features” on page 1
“Installation Options” on page 7

Corporate Dial-in Services

If users on your network are using Novell Dial-in Services, you can manage corporate address books using corporate dial-in services. Corporate dial-in services can be defined for Windows 3.1*x* workstations centrally in a Directory tree by using the NetWare Administrator "snap-in" programs on a Windows 3.1*x*, Windows 95, or Windows NT* workstation. The dial-in services are NDS™ Dial-Up Connection objects which are available to all Novell Client™ users. When users click Update in their Phone Books, all Dial-Up Connection objects on the attached server are copied as Dial-in Service entries in the Phone Book.

There are two main benefits of corporate dial-in services:

- One corporate dial-in service can be copied quickly to all users.
- Individual users do not need to understand the technology of how connections are made at the server end. Users can simply replicate the corporate dial-in services and then use them as they would any dial-in services they had defined themselves using the Phone Book.

See "Corporate Dial-in Services" on page 115 for more information about managing corporate dial-in services.

Note: Before you can create a corporate dial-in service, your network must be using NetWare 4.1 or later, and you must be using a client workstation running NetWare Administrator 4.10 or later (nwadmin.exe, nwadmn3x.exe, or nwadmin32.exe). You must have the Create right to the Container object where you want to create a dial-up connection. The rules for creating a Dial-Up Connection object (such as naming conventions) are the same as for any other type of leaf object.

Additional Links

"Remote Access Dialer" on page 8
"Win2NCS" on page 11
"Client Features" on page 1
"Installation Options" on page 7

Win2NCS

Win2NCS (previously called the NASI Redirector) allows you to dial out from the network through a pool of modems connected to the server in order to access bulletin boards, host computers, or other resources—or to dial in and remotely control a dedicated network workstation using third-party communications applications.

Win2NCS allows you to "redirect" data to and from a Windows communication port. Instead of going through a modem connected to the workstation's COM port, data is routed to a port controlled by the Novell Connection Service (NCS) on the Novell Internet Access Server (NIAS) 4.1 server. In this way, Win2NCS gives a sharing capability to modems similar to the capability that print servers give to printers. Instead of having a modem on each machine, you only need a modem pool on the server.

Note: Win2NCS does not currently work with Novell's Remote Access Dialer or the Windows Mobile Dialer due to driver conflicts. However, Win2NCS does work with third-party dialers that use the standard Windows COMM driver (such as Trumpet WinSock).

Dialing In

When you dial in to the network using Win2NCS, you can either connect as a remote node on the network or you can remotely control a workstation on the network.

With remote node connections, the remote PC functions as if it were a workstation connected directly to the network. All data required for a session (file data and applications packets) are transferred over the communications link. Data processing occurs at the remote PC.

With remote control connections, the remote PC controls a dedicated workstation on the network. Only keystrokes and screen updates are transferred over the communications link. Data processing occurs on the dedicated workstation on the network.

If you have a modem attached to your workstation on the network, you can directly dial in to your workstation and remotely control it using third-party software such as pcAnywhere*, ReachOut*, PROCOMM*, LapLink*, and CarbonCopy. If you do not have a modem attached to your workstation, you can dial in to your workstation through the

modem pool attached to your server using Win2NCS and third-party software.

Dialing Out

To dial out through the modem pool using Win2NCS, you need to have access to Win2NCS and a Windows communications application on the network workstation.

The Win2NCS documentation is available in online help (dialout.hlp).

Additional Links

“Remote Access Dialer” on page 8
“Corporate Dial-in Services” on page 10
“Client Features” on page 1
“Installation Options” on page 7

chapter 2

Planning

In order to ensure a successful Novell® Client™ for DOS and Windows 3.1*x* installation, you must have certain hardware and software on your workstation and server.

Workstation Requirements

Make sure your workstations have the following configuration before installing the Novell Client software.

Hardware Requirements

- 386 processor or better
- Minimum 15 MB of free disk space
- Minimum 8 MB of RAM
- Memory manager (such as himem.sys, emm386.exe, qemm, or 386max)
- Network board with the appropriate LAN driver
- Physical connection to a NetWare network
- (Optional) Additional disk space for optional Windows 3.1*x* software components such as Novell Directory Print Services™ (NDPS™).

  The Windows installation program informs you of the amount of additional disk space needed to accommodate the additional components.

Software Requirements

Your network must have one of the following operating systems to run the Novell Client for DOS and Windows 3.1*x*:

- Novell DOS 7
- MS-DOS* 5.*x* or 6.*x*
- PC-DOS 5.*x*, 6.*x*, or 7.0
- Windows 3.1*x* or Windows for Workgroups 3.11

  If you are using Windows for Workgroups 3.11, see the information below.

Minimum Components for Users of Windows for Workgroups 3.11

At least the following components of Novell Client for DOS and Windows 3.1*x* must be installed to allow users of Windows for Workgroups 3.11 to access Microsoft Network's peer clients and Novell's network directories with the same LAN card:

- nios.exe
- nbic32.nlm
- lslc32.nlm
- cmsm.nlm
- A TSM such as ethertsm.nlm
- A LAN driver with each supported frame type

Server Requirements

NetWare 5 Servers

The Novell Client for DOS and Windows 3.1*x* can connect to IPX™-only, IP-only, or mixed networks. NetWare 5 IP-only servers must be running Compatibility Mode (scmd.nlm) and the network must have a Migration Agent on a NetWare 5 server in order for the client to successfully connect to them.

Compatibility Mode allows IPX applications to function in IP-only networks. Compatibility Mode also allows your workstations to communicate with services in IP-only networks if the Migration Agent is installed on any NetWare 5 servers. Compatibility Mode is dependent on the Service Location Protocol (SLP) for its operation.

NetWare 3 and 4 Servers

If you are running a NetWare 3 or 4 server, you should load all server patches provided on the Novell web site at www.novell.com.

Additional Links

“Setting Up FDDI and Token-Ring Source Routing” on page 15 .
“Preparing to Install” on page 22 .

Setting Up FDDI and Token-Ring Source Routing

The source-routing drivers (sroute.nlm and route.com) enable communication across FDDI and IBM* token-ring network bridges. Sroute.nlm supports 32-bit ODI™ LAN drivers and route.com supports 16-bit ODI LAN drivers.

Before setting up support for source routing, you must load source routing on a NetWare server, install the Novell Client on the workstation, and then edit the startnet.bat file to load “Sroute.nlm” on page 16 or “Route.com” on page 17. The installation program copies sroute.nlm and route.com to the Client working directory, but it does not set up a workstation to run source routing.

Sroute.nlm

Sroute.nlm adds functionality to the ODI LAN driver to support source routing among FDDI and token-ring networks.

Syntax

LOAD SROUTE [*option1***] [***option2***]**

Example

LOAD SROUTE BOARD=1 GBR

Option	Purpose
BOARD=*number*	Specifies the number for the network board you want to modify parameters on or load source routing for. The board number is determined by the order in which the LAN drivers are loaded, starting with board number 1. The default is 1.
NAME=*board_name*	Specifies the board name.
DEF	Sends all Unknown Unicast frames as All Routes Broadcast frames.
GBR	Sends General Broadcast frames to All Routes Broadcast frames.
MBR	Sends Multicast frames to All Routes Broadcast frames.
TIME=*number*	Specifies how often the source routing table is updated, in seconds. Enter an integer between 3 and 255. The default is 10.
RSP=AR | NR | SR	Specifies how the workstation responds to a broadcast request. NR (the default) responds directly to a broadcast frame. AR responds with an All Routes Broadcast frame. SR responds to requests with a single route broadcast frame.
CLEAR	Clears the source routing table and forces dynamic rebuilding of table. Use CLEAR when an IBM bridge has gone down and an alternate route is available.

Option	Purpose
REMOVE=*number*	Removes a specific node address from the workstation's source routing table.
XTX=*number*	Specifies the number of times (between 00 and 255) sroute.nlm transmits on a timed-out route. The default is 02 times.
TRA=*number*	A number (between 00 and 255) specifying THIS RING ALTERNATE count for broadcasts. The source router alternates between source-routed and nonsource-routed frames. The default is 00.
TRO=*number*	A number (between 00 and 255) specifying a THIS RING ONLY count for broadcasts. The default is 00.
UNLOAD [BOARD=*number*]	Removes the source routing support for the specified network board.
?	Displays command line help.

Route.com

Route.com adds functionality to the ODI LAN driver to support source routing among FDDI and token-ring networks.

Syntax

ROUTE [*option1***] [***option2***] ...**

Example

ROUTE BOARD=1 GBR

Option	Purpose
BOARD=*number*	Specifies the number for the network board that route.com binds to. The board number is determined by the order that the LAN drivers are loaded in, starting with board number 1. If you do not specify a board number, route.com binds to board 1.

Option	Purpose
DEF	Prevents frames that have unknown destination addresses from being sent across single-route IBM bridges.
GBR	Sends General Broadcast frames to All Routes Broadcast frames.
MBR	Sends Multicast frames to All Routes Broadcast frames.
NODES=*number*	Specifies number of table entries (between 8 and 255) in source routing table. The default is 16.
HOPS=*number*	Specifies the number of bridges (up to 13) a packet can traverse. The default is 7.
TIME=*number*	The number of seconds (between 1 and 3640) the source router waits for a response before timing out a known route. The default is 10. Enter "0" to disable routing timeouts.
CLEAR	Clears the source routing table and forces dynamic rebuilding of table. Use CLEAR when an IBM bridge has gone down and an alternate route is available.
TRA=*number*	A number (between 00 and 255) specifying a THIS RING ALTERNATE count for broadcasts. The source router alternates between source-routed and nonsource-routed frames. The default is 00.
TRO=*number*	A number (between 00 and 255) specifying a THIS RING ONLY count for broadcasts. The default is 00.
XTX=*number*	Specifies the number of times (between 00 and 255) route.com transmits on a timed-out route. The default is 02 times.
U	Unloads route.com.
?	Displays command line help.

Additional Links

“Client Features” on page 1
“Preparing to Install” on page 22

chapter **3** # *Setting Up*

If you are upgrading several existing clients, installing over the network is easiest. You can even edit the Windows 3.1*x* setup.ini or the DOS install.cfg file to limit or eliminate user input during installation and automatically configure the client settings.

Note: If you previously installed the Novell® Client™ software using the Windows 3.1*x* installation (setup.exe) and you are using multiple locations profiles, you should update the client using the Windows installation. The DOS installation does not support Novell Dial-up Services or locations and disables previously installed versions of the Locations Manager.

You must first set up a network directory and choose the appropriate method for installing the client software over the network. See "Preparing to Install" on page 22.

There are three network installation methods:

- Automatic Client Upgrade (ACU) allows network administrators to set up and standardize the installation process. During installation, the ACU automatically configures each workstation's client settings, thus virtually eliminating the need to configure individual workstations. See "Installing with ACU" on page 52.

- User-initiated installation allows network administrators to set up an installation procedure that will run with little or no user intervention. Once users are notified of the installation procedure, they can install the client whenever it is convenient. See "Installing from the Network" on page 64.

- Z.E.N.works™, or Zero Effort Networking, is an integrated set of products for managing workstations and user desktops while reducing the total cost of ownership. Z.E.N.works includes application management and distribution features and desktop configuration, management, and maintenance features. Application Launcher, a component of Z.E.N.works, lets you distribute applications to workstations and manage those

applications as objects in the NDS™ tree. Users do not need to worry about workstation configurations, drives, ports, command line parameters, application source directories, or whether they have the latest upgrade. You, as the administrator, manage such issues easily and centrally from NetWare® Administrator. For more information, see *Z.E.N.works Overview*.

Note: In order to use Z.E.N.works, you must manage your network from a 32-bit workstation. Many of Z.E.N.works powerful application and desktop management features can be administered from a 32-bit workstation to a Windows 3.1*x* workstation.

If you are installing the client software on a small number of workstations, or if the workstations are not yet connected to a network, you can install the client from CD-ROM. See "Installing from CD-ROM" on page 65

Preparing to Install

In order to complete a network installation, you must create a network directory that the installation will occur from. See "Setting Up a Network Install Directory" on page 22.

You can also precustomize the Windows setup.ini file or the DOS install.cfg file to limit or eliminate user input during the installation process. See "Modifying the Setup.ini File" on page 24 or "Modifying the Install.cfg File" on page 39.

Hint: Before beginning the installation process, make sure your workstations and server have the minimum requirements. See "Workstation Requirements" on page 13 and "Server Requirements" on page 15.

Setting Up a Network Install Directory

Before you begin installing the Novell Client software from the network, you must first set up a network install directory using either of the following methods:

- "Setting Up a Network Install Directory from CD-ROM" on page 23
- "Mounting a CD-ROM As a Volume of the Server" on page 23

Note: You can also install with Application Launcher, a component of Z.E.N.works, which lets you distribute applications to workstations and manage

those applications as objects in the NDS™ tree. For more information, see *Z.E.N.works Overview*.

Setting Up a Network Install Directory from CD-ROM

If you have a Z.E.N.works CD-ROM, you can simply copy the files in the Doswin32 directory of the CD-ROM to a network directory.

1. **Locate the Doswin32 directory (in the Products directory).**

2. **Copy the Doswin32 directory to the network.**

3. **Grant the users that need to install the client Read and File Scan rights to the network install directory.**

   For example:

   rights sys:public/client/doswin32 rf /group=acc

4. **Use a network installation method to install the client from the network.**

   See "Installing with ACU" on page 52 or "Installing from the Network" on page 64.

Mounting a CD-ROM As a Volume of the Server

If you have a CD-ROM drive attached to a NetWare server, you can mount the CD-ROM as a volume of the server.

1. **Load cdrom.nlm on the server by entering the following:**

   ```
   LOAD CDROM
   ```

2. **Mount the Z.E.N.works CD-ROM as a volume of a NetWare server by entering the following:**

   ```
   CD MOUNT {object number| volume name} [ /name
     space] [ /option...]
   ```

   To determine the object number or volume name, execute either CD DEVICE LIST or CD VOLUME LIST. The volume name is then found in a column labeled Volume Name and the object number is found in a column labeled No. The mounted CD-ROM volume names must be unique.

3. **Grant the users that need to install the client Read and File Scan rights to the Doswin32 directory on the CD-ROM.**

   For example:

   rights sys:public/client/doswin32 rf /group=acc

4. **Use a network installation method to install Novell Client from the network.**

   See “Installing with ACU” on page 52 or “Installing from the Network” on page 64.

Modifying the Setup.ini File

You can control the Windows-based install program (setup.exe) by modifying the setup.ini file. However, the default setup.ini works fine for basic installations. If you plan on “Installing with ACU” on page 52 or “Installing from the Network” on page 64, you should take the time to modify setup.ini for your networking environment. A “Sample Setup.ini File” on page 35 is provided.

If you have several different groups of users who need to be upgraded, you might consider maintaining several different .ini files. See “Using a Configuration File Other Than Setup.ini” on page 38.

Important: If you are planning to install from DOS, you must modify the install.cfg instead of the setup.ini. See “Modifying the Install.cfg File” on page 39.

1. **Set up a network install directory.**

   For more information, see “Setting Up a Network Install Directory” on page 22.

2. **From the network install directory, open setup.ini (or the file you want to use for install information) in a text editor.**

   If you have created a network installation directory, setup.ini is located in the nls*language* directory. Setup.ini is also located in the products\doswin32\nls*language* directory on the CD-ROM.

3. **Modify the choices in the following sections in the System Administrator Customized Section as needed.**

   - "[User Choices] Options" on page 26
     - "OptRequired Settings" on page 27
     - "DOS Requester Entries" on page 29
     - "Novell Target Service Agent" on page 30
     - "Simple Network Management Protocol" on page 31
     - "Host Management Information Base" on page 32
   - "[Requester]" on page 33
   - "[Link Support]" on page 33
   - "[Unattended] Options" on page 33
   - "Install Stamp Options" on page 34

4. **(Conditional) If your 16-bit ODI™ LAN driver does not upgrade to the 32-bit ODI LAN driver, modify the name as needed.**

   For more information, see "Upgrading 16-bit Short Driver Names with 32-bit Short Driver Names" on page 35.

5. **Save the file to the network install directory and exit the editor.**

[User Choices] Options

The [User Choices] section of the setup.ini file contains settings that define default parameters to be used during installation. You can also view the “Sample Setup.ini File” on page 35.

Section	Explanation	Default
DirClient	Specifies the directory that the client files will be copied to.	c:\novell\client32
UseTCPIP	Allows the client to access a browser and the Internet. 0 = Option is not displayed on the optional components dialog 1 = Option is displayed and is checked (On) by default 2 = Option is displayed and is not checked (Off) by default	0
USENWIP	Allows the client to access NWIP servers. This should be set to “1” only if you have an NWIP server. This setting does not configure the NWIP domain name. 0 = Option is not displayed on the optional components dialog 1 = Option is displayed and is checked (On) by default 2 = Option is displayed and is not checked (Off) by default	0

OptRequired Settings

Syntax

OptRequired = *component letter, state*

Explanation

Variable	Explanation
component letter	Used in the setup.ini file to indicate which component each file belongs to. **Note:** This letter cannot be changed.
state	Specifies the state you choose for this option. It must have one of the following values: 0 = Option is not displayed on the optional components dialog 1 = Option is displayed and is checked (On) by default 2 = Option is displayed and is not checked (Off) by default

Explanations and Defaults

The following table explains each specific section under [User Choices] and lists the default setting values. Change the *state* number according to your desired setup.

Section	Explanation	Default
Novell Dial-in Services (v)	Installs “Remote Access Dialer” on page 8. Choose this option if you want to dial in to the network or if you require more than one configuration for your LAN connection.	OptRequired = v,2
Novell Distributed Print Services™ (d)	Installs NDPS™, a distributed print service for networked environments providing comprehensive management and control of printers from multiple vendors through a graphical interface.	OptRequired = d,2

Section	Explanation	Default
Novell “IPX/IP Gateway” on page 4 (g)	Installs support for Novell IPX™/IP Gateway server software that enables IPX-based NetWare networks to connect to the Internet. The server then enables Novell Clients to use the Internet without having an individual IP address on the workstation. The gateway also acts as a barrier between the intranet and the Internet, providing protection against unauthorized intrusion into your network.	OptRequired = g,2
“Novell Target Service Agent” on page 30 (a)	Installs TSA support for Storage Management Services™ (SMS™) and enables SMS to back up client workstations on diverse operating systems.	OptRequired = a,2
“Simple Network Management Protocol” on page 31 (p)	Installs SNMP, a cross-platform language that allows network administrators to manage workstations across diverse platforms.	OptRequired = p,2
“Host Management Information Base” on page 32 (b)	Installs Host MIB support which enables the management console to poll the workstation for inventory information.	OptRequired = b,2
Workstation Manager (w)	Installs Workstation Manager, which gives network administrators more advanced workstation management options.	OptRequired = w,2

DOS Requester Entries

The DOS Requester section of setup.ini sets the basic default values for the network environment. You can also view the "Sample Setup.ini File" on page 35. The parameters are listed below.

Important: You should not add additional parameters to this section of the setup.ini file. If you want to add additional "NetWare DOS Requester" on page 133 parameters to the net.cfg, you should add them in the [REQUESTER] section of the setup.ini file. See "[REQUESTER] Options" on page 43 for more information.

Syntax

FirstNetDrv= *drive letter*
PreferredTree = *tree name*
PreferredServer = *server name*
NameContext = *context name*

Explanation and Defaults

The following table explains each setting variable and lists the default values. Change the values according to your desired setup.

Variable	Explanation	Default
tree name	Name of the tree to connect to	None
server name	Name of the server to connect to	None
context name	Name context used to log in at startup	None
drive letter	Specifies the letter of the first network drive. This parameter is written in the net.cfg file on the user's workstation. Use a single letter from F to Z.	F

Novell Target Service Agent

This section sets options that control Novell Target Service Agent (TSA) support for Storage Management Services (SMS). TSA software enables SMS to back up client workstations on diverse operating systems. If you have an SMS server, you can back up information on the workstation to the SMS server by installing TSA for SMS. You can also view the "Sample Setup.ini File" on page 35 and the "NetWare DOS TSA" on page 134 parameters in the net.cfg file.

Syntax

```
TSAserver = server name
TSAcomputer = workstation name
TSApassword = password
TSAdrives = drive letter
TSAbuffers = number
```

Explanation and Defaults

The following table explains each setting variable and lists the default values. Change the values according to your desired setup.

Variable	Explanation	Default
server name	Name of the server	None
workstation name	Name of the workstation	None
password	User's password	None
drive letter	List of drives to be backed up (range: A to Z)	C
number	Number of buffers (range: 1 to 30)	1

Simple Network Management Protocol

This section sets options to install Simple Network Management Protocol (SNMP), a cross-protocol language that allows network administrators to manage computers across diverse network platforms. You can also view the “Sample Setup.ini File” on page 35 and the “Desktop SNMP” on page 132 parameters in the net.cfg file.

Hint: If the management console supports Management Information Base (MIB) files, you might want to load Host MIB support on the client workstation. See “Host Management Information Base” on page 32.

Syntax

```
SNMPcomputerName = workstation name
SNMPcomputerLocation = workstation location
SNMPcontactName = network administrator’s name
SNMPipAddresses = IP address
SNMPipxAddresses = IPX address
```

Note: SNMPipAddresses and SNMPipxAddresses can have multiple entries.

Explanation and Defaults

The following table explains each setting variable and lists the default values. Change the values according to your desired setup.

Variable	Explanation	Default
workstation name	Name of user’s workstation	None
workstation location	Description of workstation’s location	None
network administrator’s name	Name of user’s network administrator	None
IP address	Workstation’s IP address	None
IPX address	Workstation’s IPX address	None

Host Management Information Base

This section sets options that load Management Information Base (MIB) support on the client workstation. Host MIB support enables the management console to poll the workstation for inventory information. You can also view the "Sample Setup.ini File" on page 35 and the "Host MIB" on page 132 parameters in the net.cfg file.

Syntax

```
MIBdevices = device names
MIBpaths = pathnames
MIBlevels = levels
```

Note: MIBdevices and MIBpaths can have multiple entries.

Explanation and Defaults

The following table explains each setting variable and lists the default values. Change the values according to your desired setup.

Variable	Explanation	Default
device names	List of workstation devices	None
pathnames	Pathnames of directories to be included in the inventory scan that are more levels away from the root than the number of levels entered in the *levels* variable	None
levels	Subdirectory levels below the root that you want the Host MIB agent to scan for installed software	None

[Requester]

The Requester section of setup.ini allows you to set a variety of default values for your network environment. You can add any of the parameters explained in the “NetWare DOS Requester” on page 133 section of the net.cfg parameter library to this section of the setup.ini file. You can also view the “Sample Setup.ini File” on page 35.

[Link Support]

The Link Support section of setup.ini sets default values for the network environment. You can also view the “Sample Setup.ini File” on page 35. The basic parameters are listed below and additional parameters are explained in the “Link Support” on page 132 section of the net.cfg parameter library.

[Unattended] Options

The [Unattended] section of setup.ini maintains option information for the Windows*-based install. You can also view the “Sample Setup.ini File” on page 35.

Syntax

```
Unattended = number
ReplaceNewerFiles = number
IPXFrameType = default frame type
```

Explanation and Defaults

The following table explains each setting variable and lists the default values. Change the values according to your desired setup.

Variable	Explanation	Default
number (first instance)	0 = Show all dialogs to the user 1 = Do not show all dialogs to the user (no user intervention)	0

Variable	Explanation	Default
number (second instance)	0 = Always ask if user wants to replace newer files 1 = Always replace newer files 2 = Never replace newer files	0
default frame type	Set this variable to your preferred IPX frame type.	ETHERNET_802.2

Install Stamp Options

The Install Stamp section of setup.ini sets the variables used to detect if a successful upgrade has been completed. The information shown here is stamped in the nwmobile.ini file and is later checked to ensure that installation was successful. You can also view the "Sample Setup.ini File" on page 35.

Syntax

```
Name = client name
MajorVersion = number
MinorVersion = number
RevisionVersion = number
```

Explanation and Defaults

The following table explains each setting variable and lists the default values. Change the values according to your desired setup.

Variable	Explanation	Default
client	Name of the client	Client32
number (first instance)	Number of the major version	2
number (second instance)	Number of the minor version	5
number (third instance)	Number of the revision version	0

Upgrading 16-bit Short Driver Names with 32-bit Short Driver Names

Some 32-bit ODI LAN drivers have short driver names that do not match the short driver name listed in the 16-bit driver's .com file. If Setup does not upgrade a 16-bit driver to the correct 32-bit driver, you should make an entry in the [16-32bit] section of setup.ini that equates the 16-bit ODI LAN driver's short driver name with that of the 32-bit ODI LAN driver.

1. **Open setup.ini in a text editor.**

2. **Under [16-32bit], enter the filename for the 16-bit driver (without the .com extension) followed by an equal (=) sign and the filename for the 32-bit driver (without the .lan extension).**

   For example, the following line equates the short driver name of a Novell 16-bit ODI LAN driver (ne2000.com) with the short driver name for the 32-bit LAN driver (CNE2000.lan):

   ```
   NE2000=CNE2000
   ```

   This indicates that CNE2000 is the driver name for the 32-bit version of the 16-bit NE2000™ driver.

3. **Save setup.ini and close the text editor.**

Sample Setup.ini File

See "Modifying the Setup.ini File" on page 24 for additional information.

```
[User Choices]
DirClient=C:\NOVELL\CLIENT32

UseTCPIP=0
UseNWIP=0

# OptRequired = <component letter>,<state>
# where <state> is 0=hide option, 1=option on by
  default, 2=option off by default
```

```
# Novell Dial-in Services
OptRequired = v,2

# Novell Distributed Print Services
OptRequired = d,2

# Novell IP Gateway
OptRequired = g,2

# Novell Target Service Agent
OptRequired = a,2

# Simple Network Management Protocol
OptRequired = p,2

# Host Management Information Base
OptRequired = b,2

# Workstation Manager
OptRequired = w,2

#DOS Requester entries
FirstNetDrv=F
PreferredTree=
PreferredServer=
NameContext=

Novell Target Service Agent defaults
# TSA server name
TSAserver =
# User's workstation name
TSAcomputer =
TSApassword =
# List of drives to back up e.g. C D E
TSAdrives = C
# Buffers 1..30
TSAbuffers = 1

# Simple Network Management Protocol defaults
SNMPcomputerName =
```

```
SNMPcomputerLocation =
SNMPcontactName =
SNMPipAddresses =
SNMPipxAddresses =

# Management Information Base defaults
MIBdevices =
MIBpaths =
MIBlevels =

[REQUESTER]


[LINK SUPPORT]


# [Unattended]
# This section controls the unattended operation of
  Setup.
# 0 = asks users for input on all dialogs
# 1 = installs the client without user intervention
  (Automatic Client Upgrade)
Unattended = 0

# File replacement options
#  0 = Always ask user before replacing newer files
#  1 = Always replace
#  2 = Never replace
ReplaceNewerFiles = 0

# Default IPX Frame type options
# Set this to your preferred IPX frametype default.
  (i.e. ETHERNET_802.2)
IPXFrameType = "ETHERNET_802.2"

[Install Stamp]
# Unattended installation will proceed only if there
  is no existing
# NWMOBILE.INI file on the user's computer, or the
  file exists but
```

```
# the information in the Install Stamp section differs
  from the
# values below.
# This information will be transferred to the
  NWMOBILE.INI file only
# if the installation is successful (where it might
  be used by nwdetect.exe).
Name = Client32
MajorVersion = 2
MinorVersion = 5
RevisionVersion = 0
```

Using a Configuration File Other Than Setup.ini

You can specify a configuration file other than setup.ini in the login script for the Windows-based installation. This enables you to rename the edited version or to create multiple versions of setup.ini and specify the one you want to use in the login script. See “Modifying the Setup.ini File” on page 24 for specific information about what must be in this file.

On the setup.exe command line in the login script, enter

/i:*path**filename*

For example, to specify c32sales.ini, enter

```
SETUP /I:C:\NOVELL\CLIENT32\C32SALES.INI
```

Additional Links

“Installing with ACU” on page 52
“Installing from the Network” on page 64

Modifying the Install.cfg File

You can control the DOS-based install program (install.exe) by modifying the install.cfg file. If you plan on “Installing with ACU” on page 52 or “Installing from the Network” on page 64, you should take the time to modify install.cfg for your networking environment. A “Sample Install.cfg File” on page 48 is provided.

If you have several different groups of users who need to be upgraded, you might consider maintaining several different .ini files. See “Using a Configuration File Other Than Install.cfg” on page 52.

Important: If you are planning to install from Windows, you must modify the setup.ini instead of the install.cfg. See “Modifying the Setup.ini File” on page 24.

1. **Set up a network install directory.**

   For more information, see “Setting Up a Network Install Directory” on page 22.

2. **Make sure you have a backup copy of install.cfg.**

3. **Open install.cfg (or the file you want to use for install information) in a text editor.**

   Install.cfg is in the NLS*language* directory.

4. **In the [SETUP] section, specify the InstallType for the install.**

   Basic allows users to make configuration changes. Auto requires no user intervention. For more information, see “[SETUP] Options” on page 40.

5. **(Conditional) If you specified Auto for the InstallType, configure default values for the protocols you want to install.**

   Make sure to set the Install parameter to True for each protocol you want to install.

6. **In the [REQUESTER] section, enter default values for the preferred tree or server and add any defaults you want to include for this section of each workstation’s net.cfg file.**

   For more information, see “[REQUESTER] Options” on page 43.

7. **(Conditional) If necessary, make changes to the [NIOS], [Protocol IPX], [Protocol TCPIP], [Link Support], [TCP/IP], [NWIP], [SNMP], [HOSTMIB], and [TSA] sections.**

   For more information, see "Configuring Protocol and Management Support" on page 44.

   Additional information about the install.cfg file is also available. See "[driverTranslationTable] Section" on page 44 and "Installation Files and Destination Directories" on page 45.

8. **Save the file to the network install directory and exit the editor.**

[SETUP] Options

The [Setup] section of the install.cfg maintains information for the DOS-based install. For example, you can configure the installation to run without displaying installation choices to the user.

Check the following table to make sure the options are set correctly for the installation you want to perform. (Note: Bold indicates default options.)

Line	Options
InstallType	**BASIC** | AUTO BASIC is an attended installation that requires some user input. AUTO is an unattended installation that provides no user interface.
TargetPath	**AUTO** | *path* AUTO allows Setup to determine the target directories. Or you can enter a specific path after the equal (=) sign.

Line	Options
InstallWindows	TRUE | FALSE | **AUTO** Determines whether files marked with a W in the [Files] section are installed. TRUE installs Windows utilities and drivers. It requires a Windows user path (WindowsUserPath). FALSE does not install Windows utilities and drivers. AUTO installs Windows support if Setup detects win.com on the workstation.
WindowsUserPath	*path* The drive and directory of C:\ Windows where the files will be installed. A path is needed only if InstallWindows is set to TRUE.
UpdateDOSSystemFiles	**TRUE** | FALSE TRUE changes autoexec.bat and config.sys and backs up the older files with a .bnw extension. FALSE creates autoexec.new and config.new that you can use to make changes to the workstation's system files.
OverwriteStartnetBat	**TRUE** | FALSE TRUE overwrites startnet.bat. FALSE creates a startnet.new file that you can use to update the workstation’s startnet.bat file.
DoInstallIfLowSpace	**TRUE** | FALSE TRUE continues to install the client, even if low disk space is detected. FALSE stops the installation if disk space is low and records an error in the nwcinst.log file, located in the directory where lsl.com was loaded.
CopyAllUnicodeFiles	TRUE | **FALSE** TRUE installs Unicode* files for all country codes. FALSE installs Unicode files only for the country specified in Windows.

Line	Options
OverwriteNewerFiles	TRUE | **FALSE** TRUE installs files to the destination directory even if a newer version of the file exists in the directory. FALSE does not install a file if a newer version exists in the destination directory.
OverwriteNewerINIFiles	TRUE | **FALSE** TRUE overwrites any modifications made to the nwadmin.ini file by copying over the file with the original nwadmin.ini file. This is not recommended. FALSE does not overwrite a modified nwadmin.ini file.
OverwriteReadOnlyFiles	TRUE | **FALSE** TRUE overwrites files marked Read Only. FALSE does not replace files marked Read Only.
OverWriteReadOnlySYSFiles	TRUE | **FALSE** TRUE updates or modifies DOS and Windows system configuration files that are marked Read Only. FALSE does not modify DOS and Windows system configuration files that are marked Read Only.
CopyWinSysFiles	**TRUE** | FALSE TRUE copies necessary files to the Windows system directory. This must be set to TRUE for all Windows installations except installations on workstations that access Windows from the network. FALSE must be set for all Windows installations on workstations that access Windows from the network.
Use32BitDrivers	**TRUE** | FALSE TRUE sets up the client to use a 32-bit ODI™ LAN driver if one is available for the network board. FALSE sets up the client to use a 16-bit ODI LAN driver.

Line	Options
InstallWorkstationManager	TRUE | **FALSE** TRUE sets up the client so that administrators can use workstation management functions from NetWare Administrator. FALSE does not set up the client so that administrators can use workstation management functions from NetWare Administrator.
UseNWIP	TRUE | **FALSE** TRUE sets up the client to access NWIP servers. This should be set to TRUE only if you have an NWIP server. This setting does not configure the NWIP domain name. FALSE does not set up the client to access NWIP servers.
UseTCPIP	TRUE | **FALSE** TRUE sets up the client to access the Internet and use a browser. FALSE does not set up the client to access the Internet and use a browser.

[REQUESTER] Options

The [Requester] section of the install.cfg contains basic network client configuration information and uses the same syntax and options as the NetWare DOS Requester™ section in net.cfg. The basic parameters are listed below and additional parameters are explained in the "NetWare DOS Requester" on page 133 section of the net.cfg parameter library.

OverrideLocalSettings = true | false
First Network Drive = *drive_letter*
Preferred Tree = *tree_name*
Preferred Server = *server_name*
Name Context = "*context*"

Hint: If you want to use ACU to install the client without user intervention, you must include a setting for each of the basic parameters.

Configuring Protocol and Management Support

The protocol and management sections in install.cfg are [NIOS], [Protocol IPX], [Protocol TCPIP], [TCP/IP], [Link Support], [NWIP], [SNMP], [HOSTMIB], and [TSA].

The lines in each section supply default values for protocol settings. Install.exe uses these values if the settings are not in the workstation's net.cfg file, or to overwrite the values in net.cfg if the OverrideLocalSettings=True for the protocol you are installing.

[driverTranslationTable] Section

This section equates the long driver name of a16-bit ODI™ LAN driver with the driver description of the driver's 32-bit version.

Some 32-bit ODI LAN drivers have descriptions that do not match the long driver name listed in the 16-bit driver's .com file. If Install does not upgrade a 16-bit driver to the correct 32-bit driver, you should make an entry in the [driverTranslationTable] section of install.cfg that equates the 16-bit ODI LAN driver's long driver name with the 32-bit ODI LAN driver's description.

1. **Open install.cfg in a text editor.**

2. **(Conditional) If you do not know the long driver name, contact the network board manufacturer or search for the information by doing the following:**

   2a. Open the 16-bit driver's .com file in a text editor.

   For example, open ne2000.com in notepad.exe.

   2b. Search for the Long Driver Name.

   There is no consistent way to find the Long Driver Name in a .com file. Usually, the Long Driver Name includes the manufacturer's name or the driver type. For example, search for "Novell" or "Nov" or "Ethernet."

   The long driver name is *not* the string listed after "VeRsIoN=".

   2c. Record the long driver name for the 16-bit ODI LAN driver.

   2d. Close the .com file.

3. **(Conditional) If you do not know the description, contact the network board manufacturer or search for the information by doing the following:**

   3a. **Open the 32-bit driver's .ldi file in a text editor.**

   The .ldi file has the same name as the driver. For example, ne2000.ldi.

   3b. **Search for a reference to the manufacturer or type of driver.**

   For example, search for "NE2000" or "Ethernet".

   3c. **Record the description for the 32-bit driver.**

   3d. **Close the .ldi file.**

4. **Under [driverTranslationTable], enter the long driver name for the 16-bit driver followed by an equal (=) sign and the 32-bit driver's description.**

   For example, the following line equates the long driver name of a Novell 16-bit ODI LAN driver with the description for the 32-bit LAN driver:

   Novell NE2 Ethernet = Novell Ethernet NE/2

5. **Save install.cfg in the network install directory and close the text editor.**

Installation Files and Destination Directories

Install.cfg contains several sections that control installation files and target directories. The [AUTOEXEC], [WINDELETE], [WINGROUP], [TITLES], and [FILES] sections also control files during client installation. The most important of these is the [FILES] section.

[AUTOEXEC] Section

Contains the line that Install adds to the end of autoexec.bat files to call startnet.bat.

[WINDELETE] Section

Lists the files that the installation removes from the Windows directory if the InstallWindows= line is set to True. Files listed after the \System line are removed from the Windows\System directory.

[WINGROUP] Section

Assigns the names of the Program Manager program group and icons that Install creates on Windows workstations.

[TITLES] Section

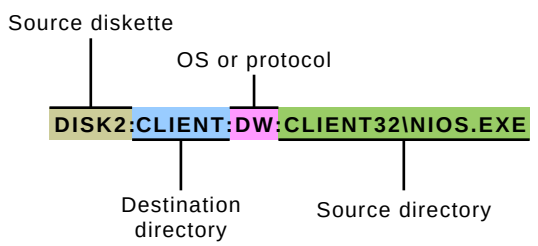
Assigns the names that Install uses to prompt for diskettes.

[FILES] Section

Contains a list of all files that install.exe copies to the workstation's hard drive and the target directory for each file. Information for each file is specified on the same line using four keywords separated by semicolons.

The four types of keywords indicate the source diskette, the target directory, the operating system or protocol the file is installed for, and the source directory, in that order.

For example, the following line appears in the [FILES] section of install.cfg:



The following tables list and describe the various keywords.

Table 3-1
Source Diskette Keywords

Keyword	Description
DISK1DOS	The first installation source diskette for the DOS install program (install.exe).
DISK#	The source diskette for the file.

Table 3-2
Destination Directory Keywords

Keyword	Description
CLIENT	Client working directory.
CLIENTNLS	The client NLS directory, located in the client working directory.
CLIENTLANG	The NLS*nwlanguage* directory in the client working directory.
WINDOWS	The working directory for Microsoft Windows.
WINSYS	The Windows system directory.
WINNLS	The Windows nls directory in the Windows working directory.
WINLANG	The language directory for Windows located in the Windows system\nls directory.

Table 3-3
OS and Protocol Keywords

Keyword	Description
D	Marks a file as necessary for NetWare DOS support. Install copies the file only if the UpdateDOSSystemFiles= line is set to True.
W	Marks a file as necessary for Windows support. Install copies the file only if the InstallWindows= line is set to True.

Table 3-3 *continued*

OS and Protocol Keywords

Keyword	Description
DW	Marks a file as necessary for a DOS or Windows installation (or both). Install copies the file if either the InstallWindows= line or the UpdateDOSSystemFiles= line is set to True.
M	Marks a file as necessary for SNMP support.
T	Marks a file as necessary for TCP/IP support.
H	Marks a file as necessary for HostMIB support.
S	Marks a file as necessary for TSA SMS™ support.
G	Marks a file as necessary for IPX/IP Gateway support.
N	Marks a file as necessary for NDPS™ support.

The final section of each line contains the name of the file to copy preceded by the subdirectory of the install directory it is located in. For example, nios\cmsm.msg means that the file cmsm.msg is located in the nios directory of the install directory.

Sample Install.cfg File

See also "Modifying the Install.cfg File" on page 39 for additional information.

```
[SETUP]
InstallType = BASIC
TargetPath = *AUTO
InstallWindows = AUTO
WindowsUserPath =  c:\windows
UpdateDOSSystemFiles = true
OverwriteStartnetBat = TRUE
DoInstallIfLowSpace = true
CopyAllUnicodeFiles = False
OverwriteNewerFiles = false
OverwriteNewerINIFiles = False
OverwriteReadOnlyFiles = False
```

```
OverwriteReadOnlySYSFiles = False
CopyWinSysFiles = True
Use32BitDrivers = True
InstallWorkstationManager = False
UseTCPIP = FALSE

[REQUESTER]
OverrideLocalSettings = false
; FIRST NETWORK DRIVE = F
NETWARE PROTOCOL = NDS BIND
; PREFERRED SERVER =
; SHORT MACHINE TYPE =
; NAME CONTEXT =

[NIOS]
OverrideLocalSettings = false
; LINE DRAW CHARS = "Ú¿ÀÙ³Ä"

[TCP/IP]
OverrideLocalSettings = false
; Set ip_server = DHCP, BOOTP or RARP
ip_server = DHCP
ip_address =
ip_router =
ip_netmask =
DNS_domain =
NameServerAddress =

[PROTOCOLIPX]
OverrideLocalSettings = false

[LINK SUPPORT]
OverrideLocalSettings = false
; MAX BUFFER SIZE 1024

[NWIP]
InstallNWIP = False
OverrideLocalSettings = False
;configurable options
```

```
NWIP_Domain_Name =

[SNMP]
InstallSNMP = False
OverrideLocalSettings = False
;configurable options
EnableMonitorCommunity = specified
MonitorCommunity = public
EnableControlCommunity = off
ControlCommunity = public
EnableTrapCommunity = specified
TrapCommunity = public
sysName = Suzanne Morley x893
sysLocation = Building 2
sysContact = suzanne@company.com
snmpEnableAuthenTraps = off

[HOSTMIB]
OverrideLocalSettings = False
InstallHOSTMIB = False
;configurable options
PRINTER =
MODEM =
TAPEDRIVE =
SWDirectorySearchDepth =
SWDirectorySearch =

[TSA]
InstallTSA = False
OverrideLocalSettings = false
;configurable options
ServerName = ServerName
WorkstationName = WorkstationName
Password = password
SelectedDrives = C
DiskBuffers = 10
StackSize = 2048

[TIMEZONE]
```

```
; SET TZ=JST-9

[TITLES]
DISK1DOS:'Novell Client for DOS and Windows 3.1x Disk
  1-DOS Install'
DISK2:'Novell Client for DOS and Windows 3.1x Disk 2'
DISK3:'Novell Client for DOS and Windows 3.1x Disk 3'
DISK4:'Novell Client for DOS and Windows 3.1x Disk 4'
DISK5:'Novell Client for DOS and Windows 3.1x Disk 5'
DRIVER32:'Novell Client for DOS and Windows 3.1x 32
  Bit LAN Driver'
DRIVER16:'Novell Client for DOS and Windows 3.1x 16
  Bit LAN Driver'

[DISKSPACE]
lowSpace = 5500
installDosSpace = 1330
installWinSpace = 3380

[WINGROUP]
group=NW.grp:Novell Client
icon=nwuser.exe:W:winsys:NetWare User Tools
icon=loginw31.exe:W:client:NetWare Login
icon=setup.hlp:W:clientlang:Novell Client Help
icon=gwsw16.exe:G:client:IP Gateway Switcher
icon=winping.exe:G:client:IP Gateway WinPing

[READMEFILE]
LANGCLIENT:D:DOSWIN.txt

[FILES]
; readme file for DOS
DISK2:LANGCLIENT:D:DOSWIN.TXT
```

Using a Configuration File Other Than Install.cfg

You can specify a configuration file other than install.cfg for the DOS-based installation. This enables you to rename the edited version or to create multiple versions of install.cfg and specify the one you want to use on a command line. See “Modifying the Install.cfg File” on page 39 for specifics about what must be in this file.

On the install.exe command line, enter

/C=*path**filename*

For example, to specify c32sales.cfg, enter

```
INSTALL /C=C:\NOVELL\CLIENT32\C32SALES.CFG
```

Additional Links

“Setting Up DOS-based ACU for DOS Login” on page 53
“Installing from the Network” on page 64

Installing with ACU

The Automatic Client Upgrade (ACU) is a process designed to upgrade all of your workstations currently using a VLM™, NETX, or 32-bit client. To run Automatic Client Upgrade, you need to add commands to the system, container, or personal login script for the users you want to upgrade.

Choosing Which ACU to Use

The ACU process varies depending on the way users log in to the network and which installation program is used (DOS install.exe or Windows setup.exe).

Note: If you previously installed the client using the Windows 3.1*x* installation (setup.exe) and you are using multiple locations profiles, you should update the client using the Windows installation. The DOS installation does not support Novell Dial-up Services or locations and it disables previously installed versions of the Locations Manager.

See the following table to select which ACU process works best for your users.

Login	DOS Installation (install.exe)	Windows Installation (setup.exe)
DOS	See “Setting Up DOS-based ACU for DOS Login” on page 53.	See “Setting Up Windows-based ACU for DOS Login” on page 59.
Windows	Not Recommended	See “Setting Up Windows-based ACU for Windows Login” on page 62.

To upgrade specific users’ workstations, modify those users’ login scripts. Use NetWare Administrator or any text editor.

To upgrade workstations for users in a container, modify that container’s login script. Use NetWare Administrator or NETADMIN. To upgrade workstations for users in a profile, modify that profile login script. Use NetWare Administrator or NETADMIN.

To upgrade a workstation running bindery-based client software, edit the system login script (public\net$log.dat).

Hint: Once users have upgraded the client, you can remove the ACU information from the login scripts.

Setting Up DOS-based ACU for DOS Login

If your users login to the network in DOS, and you want to use the DOS-based install utility (install.exe), complete the following steps.

1. **In the sys:public directory, create a Client directory.**

2. **In the Client directory, create a Doswin32 directory, a Dos_acu directory, and a Log directory.**

3. **Copy the contents of the Products/Doswin32 directory from the Z.E.N.works CD-ROM to the Sys:Public\Client\Doswin32 directory.**

   The Doswin32 directory is located in the Products directory.

4. **Copy the contents of the Dos_acu directory from the Z.E.N.works CD-ROM to the Sys:Public\Client\Dos_acu directory.**

   The Dos_acu directory is located in the \Products\Adm32\Ibm_*language* subdirectory.

5. **Review the DOS install.cfg file to make sure the parameters are correct for your network.**

   For information on setting parameters in install.cfg, see "Modifying the Install.cfg File" on page 39.

6. **Using a NetWare administration utility (such as NetWare Administrator), create a user group for the users you want to upgrade to the Novell Client.**

7. **Grant Create, Write, and Modify rights for the log directory to all users installing the new client software.**

8. **Open the system, container, or profile login script in the administration utility.**

9. **Insert commands to run nwdetect.exe, install.exe, nwstamp.exe, and nwlog.exe using IF...THEN...ELSE statements to handle exit codes.**

   Make sure to include a pound sign (#) before each command line in the login script.

   For more information about setting up the login script, see "Example DOS Login Script for DOS ACU" on page 59.

10. **(Optional) Insert a command into the login script to run reboot.com to reboot the workstation.**

11. **Save the login script and exit the administration utility.**

Nwdetect.exe Program

This program compares the version stamp and the client type on the client workstation with the version information listed on the nwdetect.exe command line.

Code	Description
0	The client software does not need to be updated.
1	The client software needs to be updated. Nwdetect.exe returns a “1” in any of the following circumstances: ◆ The Name= line in the Install Stamp section of the client’s net.cfg does not match the [name] option on the command line. ◆ The major, minor, and revision versions in the Install Stamp section do not match the [version] option on the command line. ◆ The client type (VLM, NETX, NIOS) does not match the [/T (client type)] option on the command line. ◆ An Install Stamp does not exist on the client workstation.

Nwdetect.exe uses the following syntax:

NWDETECT [*options***]**

Option	Description
name	A string nwdetect.exe compares with the string listed on the Name = line.
version1	Specifies the major, minor, and revision version, in #.#.# format. Used with the *version2* option, this number represents the starting version.
version2	Specifies the ending version in #.#.# format. You can use this parameter to test for a version range.
/T (*client_type*)	Detects the type of client loaded. Valid client types are NETX, VLM, and NIOS (Novell).

Option	Description
/P (“*prompt text*”)	Prompts the user if other options return as True. The user must answer the prompt with a Y or N. A Y returns an exit code of 0. An N returns an exit code of 1.
/C (*path\filename*)	Specifies the path and filename where nwdetect.exe reads the Install Stamp. Net.cfg is the default file if no file is specified.

For example,

nwdetect client_32 2.5.0 /c c:\novell\client32\net.cfg

detects if the workstation is running the current software and has an Install Stamp section in net.cfg that contains the following lines:

Name = Client_32
Major Version = 2
Minor Version = 5
Revision Version = 0

Nwstamp.exe Program

This program writes version information to the client workstation's net.cfg file (or the file you specify) in the Install Stamp section. This section contains four lines:

Name = *name*
Major Version = #
Minor Version = #
Revision Version = #

Nwdetect.exe, compares the four values listed in the Install Stamp section with those listed in the nwdetect.exe command line in the login script.

Nwstamp.exe uses the following syntax:

NWSTAMP *name version* **[/B** *path\filename* **[/C**
*path\filename***]]**

Parameter	Description
name	Specifies the word nwstamp.exe places on the Name= line. The name cannot contain spaces.
version	Specifies the major, minor, and revision versions nwstamp.exe uses to write version information. Specifies three values for the version, in #.#.# format. For example, nwstamp.exe writes “2.5.0” to the net.cfg as follows: Major Version = 2 Minor Version = 5 Revision Version = 0
[/B *path\filename*]	Backs up net.cfg using the path and filename specified.
[/C *path\filename*]	Specifies the path and name of the file you want to stamp.

For example,

nwstamp client_32 2.5.0 /c c:\novell\client32\net.cfg

puts an Install Stamp section in the net.cfg with the following lines:

Name = Client_32
Major Version = 2
Minor Version = 5
Revision Version = 0

Nwlog.exe Program

You can use nwlog.exe to record the results of the client upgrade. The program writes the following information to the file specified on the command line:

- Date and time nwlog.exe ran on the workstation
- Username of the user logged in to the network from the workstation
- Network address of the workstation

Nwlog.exe uses the following syntax:

NWLOG [/F *pathfilename*] [/M "*message*"] [/R]**

Option	Description
[/F *path\filename*]	Path and filename to the log file where nwlog.exe writes the log entry.
[/M "*message*"]	Additional message to include in the log entry. The message must be in quotes. The total amount of alphanumeric characters allowed for the message and NWLOG command line syntax is 125.
[/R *number_retries*]	The number of times nwlog.exe tries to open the log file. The default number is 5.

For example,

nwlog /f \\server_1\sys\public\client\log\update.log

writes information to the update.log file on server_1:sys:public\client\log similar to the information on following line:

7-08-98 8:10:24 am USER_1 00000001:00000000001B

Reboot.com Program

This program reboots a client workstation.

Example DOS Login Script for DOS ACU

Example 3-1

```
IF member of "Accounting" THEN
    MAP ROOT T:=SERVER1\SYS:PUBLIC\CLIENT
    WRITE "Searching for client version information."
    #T:DOS_ACU\NWDETECT N_Client_32 2.5.0
    WRITE "Detection completed."
    REM Run INSTALL if N_Client_32 version 2.5.0 is not on the computer
    IF ERROR_LEVEL = "1" THEN
      WRITE "Updating Novell Client."
      #T:DOSWIN32\INSTALL
      IF ERROR_LEVEL = "0" THEN
         #T:DOS_ACU\NWSTAMP N_Client_32 2.5.0
         #T:DOS_ACU\NWLOG /f T:\LOG\UPDATE.LOG
         WRITE "Update Completed - Press any key to reboot."
         PAUSE
         #T:DOS_ACU\REBOOT
      ELSE
         #T:NWLOG /F I:\LOG\FAILED.LOG
         WRITE "Client upgrade failed. Contact the network
         administrator."
      END
    END
    MAP DEL T:
END
```

Setting Up Windows-based ACU for DOS Login

If your users login to the network in DOS, but need the functionality installed by the Windows-based install utility (setup.exe), complete the following steps.

1. **In the Sys: Public directory, create a Client directory.**

2. **In the Client directory, create a Doswin32 directory and a Dos_acu directory.**

3. **Copy the contents of the Doswin32 directory from the Z.E.N.works CD-ROM to the Sys:Public\Client\Doswin32 directory.**

   The Doswin32 directory is located in the Products directory.

4. **Copy the contents of the Dos_acu directory from the Z.E.N.works CD-ROM to the Sys:Public\Client\Dos_acu directory.**

   The Dos_acu directory is located in the \Products\Adm32\Ibm_*language* subdirectory.

5. **Review the setup.ini file to make sure the parameters are correct.**

   For information on modifying parameters in setup.ini, see "Modifying the Setup.ini File" on page 24.

6. **Using a NetWare administration utility (such as NetWare Administrator), create a user group for the users you want to upgrade to Novell Client.**

7. **Open the system, container, or profile login script in the administration utility.**

8. **Add commands to run nwdetect.exe and win setup.exe /acu.**

   Make sure to include a pound sign (#) before each command line in the login script.

   For more information about setting up the login script, see "Example DOS Login Script for Windows ACU" on page 62.

9. **Save the login script and exit the NetWare administration utility.**

Nwdetect.exe Program

This program compares the version stamp and the client type on the client workstation with the version information listed on the nwdetect.exe command line.

Code	Description
0	The client software does not need to be updated.
1	The client software needs to be updated. Nwdetect.exe returns a “1” in any of the following circumstances: The Name= line in the Install Stamp section of the client’s net.cfg does not match the [name] option on the command line. The major, minor, and revision versions in the Install Stamp section do not match the [version] option on the command line. The client type (VLM, NETX, NIOS) does not match the [/T (client type)] option on the command line. An Install Stamp does not exist on the client workstation.

Nwdetect.exe uses the following syntax:

NWDETECT [*options***]**

Option	Description
name	A string nwdetect.exe compares with the string listed on the Name = line.
version1	Specifies the major, minor, and revision version, in #.#.# format. Used with the *version2* option, this number represents the starting version.
version2	Specifies the ending version in #.#.# format. You can use this parameter to test for a version range.
/T (*client_type*)	Detects the type of client loaded. Valid client types are NETX, VLM, and NIOS (Novell).
/P (“*prompt text*”)	Prompts the user if other options return as True. The user must answer the prompt with a Y or N. A Y returns an exit code of 0. An N returns an exit code of 1.
/C (*path\filename*)	Specifies the path and filename where nwdetect.exe reads the Install Stamp. Net.cfg is the default file if no file is specified.

For example,

nwdetect client_32 2.5.0 /c c:\novell\client32\version.cfg

detects if the workstation is running the current software and if the version file (version.cfg) has an Install Stamp section that contains the following lines:

Name = Client_32
Major Version = 2
Minor Version = 5
Revision Version = 0

If nwdetect does not locate a version.cfg file or if the version.cfg file contains a different version stamp, the client software is updated.

Example DOS Login Script for Windows ACU

Example 3-2

```
IF member of "Accounting" THEN BEGIN
    MAP T:=SYS:PUBLIC\CLIENT\DOS_ACU
    MAP S:=SYS:PUBLIC\CLIENT\DOSWIN32\NLS\ENGLISH
    WRITE "Checking Client Version Information.
    #T:nwdetect.exe CLIENT_32 2.5.0 /C C:NOVELL\CLIENT32\version.cfg
    IF ERROR_LEVEL = "1" THEN BEGIN
      DRIVE S:
      EXIT "WIN setup.exe"
END
```

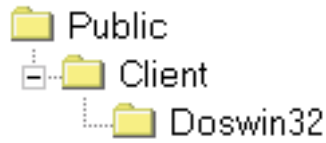
Note: The line EXIT "WIN setup.exe" runs the Windows client installation in unattended mode only if the [Unattended] option is set in the setup.ini file (see "Modifying the Setup.ini File" on page 24).

Setting Up Windows-based ACU for Windows Login

If your users login to the network in Windows, and you want to use the Windows-based install utility (setup.exe), complete the following steps.

1. **In the sys: public directory, create a client directory.**

2. **In the client directory, create a doswin 32 directory.**



3. **Copy the contents of the doswin32 directory from the Z.E.N.works CD-ROM to the sys:public\client\doswin32 directory.**

   By default, the the doswin32 directory is located in the products directory.

4. **Review the setup.ini file to make sure the parameters are correct.**

   For information on modifying parameters in setup.ini, see "Modifying the Setup.ini File" on page 24.

5. **Using a NetWare administration utility (such as NetWare Administrator), create a user group for the users you want to upgrade to Novell Client.**

6. **Open the system, container, or profile login script in the administration utility.**

7. **Add the following in the login script:**

   MAP *drive:=\\servername\volume\...\doswin32\nls\english*
   @*drive***:setup.exe /acu**

   Make sure to include an at sign (@) before each command line in the login script.

   For example:

   ```
   MAP T:=\\thor\sys\public\client\doswin32\nls\
     english
   @T:setup.exe /acu
   ```

8. **Save the login script and exit the NetWare administration utility.**

Example Windows Login Script for Windows ACU

Example 3-3

```
IF member of "Accounting" THEN BEGIN
   WRITE "Checking Client Version Information."
      MAP T:=\\thor\sys\public\client\doswin32\nls\english
      @T:setup.exe /acu
END
```

Installing from the Network

After you create a network install directory, you can instruct your network users to run either the DOS (install.exe) or Windows* (setup.exe) installation program from the network to update the client software on their workstations.

1. **Create a network install directory and then copy the doswin32 directory to it.**

   For more information, see "Setting Up a Network Install Directory" on page 22.

2. **(Optional) Modify the setup.ini or install.cfg to supply default values for the installation and to reduce or eliminate the need for user intervention.**

   "Modifying the Setup.ini File" on page 24 and "Modifying the Install.cfg File" on page 39 allow you to control the amount of user intervention. You can supply some or all requested values.

3. **Copy the modified setup.ini or install.cfg file to the network install directory.**

Steps to Be Completed by the Users

Once you have modified the default values, instruct the users to complete the following steps.

1. **Log in to the network.**

2. **Map root a drive to the network installation directory.**

   For example:

   `MAP ROOT I:SYS:PUBLIC\CLIENT\DOSWIN32`

3. **Do one of the following:**

   - If you are installing from Windows, make sure you are running Windows 3.1*x*, and then run winsetup.exe from the install directory.
   - If you are installing from DOS, make sure you are in the directory, and then enter

     ```
     install
     ```

4. **If you are asked to provide information during the installation, follow the on-screen instructions.**
5. **Reboot your computer.**

Installing from CD-ROM

If you are installing the client software only on a small number of workstations, or if the workstations are not yet connected to a network, you can install the Novell Client for DOS and Windows 3.1*x* software from the CD-ROM using either the Windows installation utility or the DOS installation utility. See “Installing from CD-ROM in Windows” on page 65 or “Installing from CD-ROM in DOS” on page 66.

Hint: If you are installing the software on several workstations that have network connections, using one of the network installation options is generally better. See “Setting Up” on page 21 for an explanation of the three types of network installation methods.

Installing from CD-ROM in Windows

1. **Insert the Z.E.N.works CD-ROM.**
2. **Do one of the following:**

   - In Program Manager, click File > Run, and then enter the path for the Novell Windows setup program (winsetup.exe).
   - Switch to the CD-ROM drive and then double-click winsetup.exe in the appropriate directory in File Manager.

   Winsetup.exe allows you to install additional software. It accesses the Novell Client for DOS and Windows 3.1*x* install program (setup.exe).

3. **Click the language version you want to install.**

4. **Click Windows 3.*x* > Install Novell Client > Yes.**

5. **Follow the on-screen instructions to complete the setup.**

6. **(Conditional) Based on the optional components you have chosen, you might have to set up a Location Profile. If so, follow the on-screen instructions to complete this task.**

7. **When Setup is complete, click Finish to restart the computer.**

8. **(Conditional) If the Location Selection dialog box is displayed when the workstation restarts, select a location.**

   For more information on selecting locations, refer to the Novell Client online help.

9. **Start Windows and log in.**

Installing from CD-ROM in DOS

1. **Insert the Z.E.N.works CD-ROM.**

2. **From a DOS prompt, switch to the drive where the Z.E.N.works CD-ROM is located.**

3. **Change to the Products\Doswin32 directory, and then enter `install`.**

4. **Press Enter to accept the License Agreement.**

5. **Select the options you want to install on the workstation.**

6. **Press F10 to continue.**

   To return to the previous screen or to cancel the installation, press Esc at any time before Install begins copying files.

7. **Configure the options you are installing.**

   Depending on the options you have chosen, various configuration screens appear. Use the arrow keys to move to a new field and press Enter to edit the field.

8. **Press F10 to save your changes and continue.**

9. **Select 16-bit or 32-bit LAN driver type.**

10. **Review the Installation Configuration Summary and make necessary changes by using the arrow keys to move to a new field and pressing Enter to edit the field.**

11. **Press F10 to continue.**

    Install copies the appropriate files to your workstation and sets up the workstation to run the Novell Client software.

12. **Exit Install by pressing Enter to return to DOS or by pressing Ctrl+Alt+Del to reboot the workstation.**

    The Novell Client software does not load until the workstation restarts.

Peer-to-Peer Networking

If your workstation uses Windows for Workgroups 3.11 and you want access to Microsoft Networking's peer clients as well as Novell's network directories, you should load odinsup.386. This allows Windows for Workgroups 3.11 users to access peer clients and network directories with the same LAN card.

In addition to loading odinsup.386, at least the following minimum components of Novell Client for DOS and Windows 3.1 *x* must be loaded in the startnet.bat file:

- nios.exe
- nbic32.nlm
- lslc32.nlm
- cmsm.nlm
- A TSM such as ethertsm.nlm
- A LAN driver with each supported frame type

If the client is also desired, the modules that support the correct protocols, the client (client32.nlm), and other network management features must be loaded. See “Optimizing Module Load Order” on page 91 and “32-Bit Load Order Examples” on page 94.

1. **From Windows 3.1*x*, close all other programs running on the workstation.**

2. **From Program Manager, double-click the Network program group.**

3. **Double-click Network Setup.**

4. **(Conditional) If Microsoft Networking is not already installed, click Networks and install it as directed.**

5. **Click Drivers.**

6. **(Conditional) If you have an NDIS driver loaded, click it in the Network Drivers list and then click Remove.**

7. **Click Yes.**

   ODINSUP replaces the NDIS driver.

8. **Click Add Adapter.**

9. **In the Select a Network Adapter to Install list, click Unlisted or Updated Network Adapter, and then click OK.**

10. **When asked for the location of the driver, enter the location of odinsup.386 and its corresponding oemsetup.inf file.**

    These files are located on the Novell CD-ROM in the doswin32\windrv directory.

11. **Verify that the ODINSUP driver type is NDIS3.**

    If the driver type is something other than NDIS3, complete the following steps:

    11a. Click Setup.

    11b. From the Driver Type list, click Enhanced Mode NDIS Driver.

    11c. Click OK.

12. **Verify that the protocol stacks available on your network appear in the Network Drivers list.**

    If the protocol stacks available on your network do not appear, complete the following steps:

    12a. Click Add Protocol.

    12b. Click the protocol that was missing from the Drivers list.

    12c. Click OK.

13. **Finish the installation by clicking OK until the Network Setup is closed.**

14. **Check the startnet.bat file to make sure that the modules you want are loaded.**

    For help in viewing this file, see "Editing the Startnet.bat" on page 93.

When Windows is restarted, ODINSUP is loaded and it binds to the first ODI driver registered with the Link Support Layer™ (LSL™). The Microsoft client and NDIS protocols are channeled through ODINSUP and the ODI driver.

Changes Made during Installation

When you install the Novell Client for DOS and Windows 3.1*x* software on a workstation, a temporary directory is created on the disk you are installing to and files are copied there. The required final directories are created (if they do not already exist) and the software is copied to these directories. In addition, various configuration files are created or updated and changes are made to the Windows interface.

Note: Depending on whether any or all of the optional components were selected, not all of the following will apply on every client workstation.

All files marked with an asterisk (*) are new for this version of the Novell Client. In addition, note that ctl3d32.dll is no longer installed.

Novell Client Program Group Added

A Novell Client program group is created in the Windows 3.*x* Program Manager and the following line is added to progman.ini:

```
GROUP# =C:\WINDOWS\NW.GRP
```

Novell Client Directories Added

The installation searches for an existing client. If one is found, the directory containing the existing client is set as the destination directory for the client software installation. Otherwise, the working directory c:\novell\client32 and a number of subdirectories are created:

- \readme contains the release notes
- \tcp contains the TCP/IP configuration files
- \nls*language* contains language-specific files

Note: The nls*language* directory is also added to the c:\windows directory.

If you install the Locations program during the Windows installation, the following subdirectories are created:

- \data contains the Phone Book files
- \modems contains modem .ini and .isd files
- \profile contains the location.ini file and a subdirectory for each location (and each subdirectory contains the profile.ini, startnet.bat, and net.cfg files corresponding to its location)

If you install Netscape*, the subdirectory \browser is created containing the Novell Netscape browser files.

Configuration Files Created or Updated

A number of configuration files are created and updated. Normally, you do not need to edit any of these configuration files

Config.sys File

If the Windows installation program was used, the old config.sys file is saved as config.000, if possible. If .000 is not available, .001 is used, etc. If the DOS installation program was used, the old config.sys file is saved as config.old.

The following lines are added to the config.sys file:

```
LASTDRIVE=Z
[common]
DEVICE=C:\NOVELL\CLIENT32\LOCATION.EXE
```

Location.exe is the location selection program and is added only if you have selected Locations in the Windows installation. The [common] label indicates that the statements that follow are common to all locations.

You can edit config.sys to load devices on a location-dependent basis in the Client Control Panel. Detailed information about using the Client Control Panel is available by clicking Help in the program.

Autoexec.bat File

If the Windows installation program was used, the old autoexec.bat file is saved as autoexec.000, if possible. If .000 is not available, .001 is used, etc. If the DOS installation program was used, the old autoexec.bat file is saved as autoexec.old.

The line

```
@CALL drive:\client_home_dir\startnet.bat
```

is added to the autoexec.bat file and the Client working directory is added to the PATH variable in the autoexec.bat file.

Net.cfg File

If the workstation has a net.cfg file, the following changes are made:

- If the workstation uses a 16-bit driver, the Link Driver section is added or edited
- The following lines are added to the NetWare DOS Requester section:

```
first network drive = f
netware protocol = nds, bind
```

- Sections in net.cfg are added or edited based on the configuration information the user supplies during installation.

Win.ini File

If the Windows installation program was used, the old win.ini file is saved as win.000, if possible. If .000 is not available, .001 is used, etc. If the DOS installation program was used, the old win.ini file is saved as win.old.

The following line is added to the [Windows] section of the workstation's win.ini file:

```
load = nwpopup.exe
```

System.ini File

The following changes are made to the system.ini file:

- All instances of dosnet, vtcpip.386, vipx.386, and device = vtcpip.386 are removed from the Network= line of the [386 Enh] section.
- The Network= line is modified in the [386 Enh] section to include vnetware.386.
- If installing a 16-bit ODI LAN driver, the following line is added to the [386 Enh] section:

```
device = vlanint.386
```

- The following changes are made to Windows 3.1*x* clients:
  - The following line is added to the [boot] section:

    ```
    network.drv = netware.drv
    ```

  - The following line is added to the [boot.description] section:

    ```
    network.drv = Novell NetWare (4.0)
    ```

- The following changes to are made to Windows for Workgroups 3.11 clients:
  - The following line is added to the [boot] section:

    ```
    secondnet.drv = netware.drv
    ```

  - The following line is added to the [boot.description] section:

    ```
    secondnet.drv = Novell NetWare (4.0)
    ```

Nwadmn3x.ini File

The following lines are added to nwadmn3x.ini:

```
[Snapin Object DLLs WIN3X]
admapi16=c:\novell\client32\admapi16.dll
rapadm16=c:\novell\client32\rapadm16.dll
```

The last line loads the additional Dial-in Service object class (rapadm16.dll).

Nwadmin.ini File

The following lines are added to nwadmin.ini:

```
[Snapin Object DLLs]
admapi16=c:\novell\client32\admapi16.dll
rapadm16=c:\novell\client32\rapadm16.dll
```

The last line loads the additional Dial-in Service object class (rapadm16.dll).

Note: The first time you run NetWare Administrator after installing Novell Client for DOS and Windows 3.1*x*, you are prompted to add the new object class to

NDS. You need the Supervisor right to the entire Directory tree in order to do this.

Nwmobile.ini File

During the Windows installation, a file called nwmobile.ini is created in the c:\windows directory to define various Client program settings.

Netware.ini File

A file called netware.ini is created in the c:\windows directory to define settings for the User Tools Interface.

NetWare Mobile Phone Book Entries Updated during Windows Installation

Any NetWare Mobile™ for Windows 3.*x* personal phone book entries found on a client workstation are migrated to dial-in services during the Windows installation. They are displayed as entries in your Phone Book and can be used in the same way as any dial-in service created within the Client.

TCP/IP Information Created or Updated during Installation

If TCP/IP is chosen during installation, all instances of winsock.dll and wlibsock.dll in the Windows root and Windows System directories are renamed by changing the .dll extension to .old. Winsock.dll and wlibsock.dll are installed to the Client working directory (by default, novell\client32).

The following lines are added or edited:

- The Protocol TCPIP section in the net.cfg file is added or edited.
- The following lines are added to the resolv.cfg file:

  ```
  DOMAIN domain_name_entered
  NAMESERVER address_entered
  ```

  Note: If resolv.cfg is not already on the workstation, setup.exe creates the file in the tcp directory of the Client working directory.

- The following line is added to startnet.bat to load the LAN driver and binds it to the IP frame type:

  ```
  load c:\novell\client32\ODI_driver.lan
    [configuration parameters] frame=[IP frame
    type]
  ```

- The following line is added to startnet.bat to load the TCP/IP NLM:

  ```
  load c:\novell\client32\tcpip.nlm
  ```

- The following line is added to startnet.bat to load the NetWare/IP™ NLM™ program:

  ```
  load c:\novell\client32\nwip.nlm
  ```

SNMP Information Created or Updated during Installation

If SNMP is chosen during installation, the following lines are added or edited:

- The Desktop SNMP section in net.cfg is added or edited. If the workstation also runs support for Host MIB, a Host MIB section is added.

- The following lines are added to startnet.bat to load the SNMP NLM programs:

  ```
  load c:\novell\client32\snmp.nlm
  load c:\novell\client32\snmpipx.nlm
  load c:\novell\client32\snmpudp.nlm
  ```

TSA Information Created or Updated during Installation

If TSA is chosen during installation, the following lines are added or edited:

- The NetWare DOS TSA section in net.cfg is added or edited and includes the TSA server name, password, disk buffers, and drives.
- The following lines are added to startnet.bat to load the workstation TSA:

```
load c:\novell\client32\tsasms.com
load c:\novell\client32\tsatimer.com
```

Note: The second line loads a TSR (under 10 KB, depending on the Disk Buffers parameter) that communicates with sbackup.nlm on the SMS server.

Windows Files Created or Updated during Installation

Client Files Copied to the Windows/ nls/*language* Directory

login.dat	netware.drv
login.msg	netware.hlp
loginw31.hlp	

Client Files Copied to the Windows System Directory

calwin16.dll	loginw31.dll	nwgdi.dll	nwuser.exe
clnwin16.dll	ncpwin16.dll	nwipxspx.dll	prtwin16.dll
clxwin16.dll	netware.drv	nwlocale.dll	tli_spx.dll
ctl3dv2.dll	netwin16.dll	nwnet.dll	tli_win.dll
lgnw3116.dll	nwcalls.dll	nwpopup.exe	vlanint.386
locwin16.dll	nwdrvlgo.bmp	nwpsrv.dll	vnetware.386

Deleted Windows Files

The installation deletes the following files from the Windows root directory (normally c:\windows) and replaces some of them in the Windows System directory.

netware.drv	nwlocale.dll	nwpopup.exe	tbmi2.com
netware.hlp	nwcalls.dll	nwpservr.dll	pix.386
nwcalls.dll	nwnet.dll	pnw.dll	vnetware.386
nwipxspx.dll	nwpsrv.dll	taskid.com	

Uninstalling

Novell Client for DOS and Windows 3.1*x* software does not have an uninstall program, so you must edit system files and delete directories if you want to remove the software.

Hint: If you plan to use the client again on the workstation, you can merely disable the client by commenting out the line in the autoexec.bat that calls startnet.bat in the client32 directory. See “Disabling the Client” on page 79 and “Disabling Protocols” on page 79.

Novell Client does not replace the VLM or NETX client, so you can revert to these clients simply by specifying the startnet.bat file in the nwclient directory. However, you might not be able to link to an IP-only NetWare 5 server with the older clients. See “Reverting to a Previously Installed VLM or NETX Client” on page 81.

This procedure is generalized for Windows 3.1 and Windows for Workgroups 3.11. Some tasks might not be applicable to removing Novell Client support for Windows from your particular workstation.

Removing the Novell Client

1. **Delete the client32 directory.**
2. **In Program Manager, switch to the Novell Client window.**
3. **Select each icon in the group and click Delete.**
4. **With the Novell Client window still highlighted, click Delete.**

5. **In Program Manager, click File > Run.**

6. **Enter SYSEDIT on the command line.**

7. **Click the autoexec.bat window and do the following:**

   7a. **Delete path c:\Novell\Client32; %path%.**

   7b. **Delete the line that calls the startnet.bat file.**

   Note: You can also edit this file and the following files with any text editor.

8. **Click the config.sys window and do the following:**

   8a. **Delete device=c:\novell\client32\location.exe.**

   8b. **Delete device=c:\novell\client32\didb.sys.**

9. **Click the system.ini window and do the following:**

   9a. **Delete vnetware.386 from the network = line in the [386 Enh] section.**

   9b. **Delete the device = vlanint.386 line from the the [386 Enh] section.**

   9c. **Delete netware.drv from the secondnet.drv = or the network.drv = line in the [boot] section.**

   9d. **Delete Novell Client for DOS/Windows from the secondnet.drv = or the network.drv = line in the [boot.description] section.**

10. **Click the win.ini window and do the following:**

    10a. **Delete run=c:\novell\client32\nwmstart.exe.**

    10b. **Delete the load = nwpop.exe line from the [Windows] section.**

11. **Save your changes to the files and close SYSEDIT.**

12. **Delete the client files from the Windows root and Windows System directories.**

    See “Windows Files Created or Updated during Installation” on page 76 for a list of files to delete.

13. **If you installed support for TCP/IP, rename winsock.old and wlibsock.old in the Windows root and Windows System directories to winsock.dll and wlibsock.dll, respectively.**

Disabling the Client

You can temporarily remove the client functionality from a workstation. If you want to remove it completely, see "Uninstalling" on page 77.

1. **Open autoexec.bat in a text editor.**
2. **Comment out the line that calls startnet.bat.**

   For example:

   ```
   rem @call startnet
   ```

3. **Save the change and close the autoexec.bat file.**
4. **Open the config.sys in the text editor.**
5. **Comment out the location.exe in the [common] section.**

   For example:

   ```
   rem c:\novell\client32\location.exe
   ```

6. **Save the change and exit the editor.**

Disabling Protocols

Warning: Disabling protocols could cause you to lose the functionality of applications that use the disabled protocol or to lose your connection to the network. If you are not sure about which protocols to disable, you should disable only the associated drivers by commenting out their load line. Applications that use the protocols will then still run on your network.

You can disable support for protocols by commenting out the references to the drivers associated with the protocols in the startnet.bat file. If you also want to disable the protocol settings, you can comment them out in the startnet.bat file.

Note: If you have multiple location profiles, there is both a startnet.bat and net.cfg file for each location profile you create. Edit these files for the location

profile you are using. If you did not create a location profile during installation, then these are the files in the default location profile subdirectory, profile\loc_. The old file is located in loc_0.

Disabling Protocol Support

1. **Open startnet.bat in a text editor.**

   The simplest way to ensure that you are opening the startnet.bat file for the correct location profile, is to run the Locations program. Select the profile and then click Advanced > Edit Startnet.bat. The file is opened in an editor.

2. **Comment out the driver load line for the protocol you do not want.**

   For example, if you want to disable protocol support for TCP/IP, place a REM statement before the line that loads the TCP/IP protocol (Ethernet II):

   ```
   rem load cne2000.lan frame=ethernet_II
   ```

3. **Save your changes and exit the editor.**

4. **Reboot the workstation.**

Disabling Protocol Settings

1. **Disable protocol support.**

   See “Disabling Protocol Support” on page 80.

2. **Open net.cfg in a text editor.**

   The simplest way to ensure that you are opening the net.cfg file for the correct location profile, is to run the Locations program. Select the profile and then click Advanced > Edit Net.cfg. The file is opened in an editor.

3. **Comment out the section that maintains the settings for the protocol you want to disable.**

4. **Save your changes and exit the editor.**

5. **Reboot the workstation.**

Reverting to a Previously Installed VLM or NETX Client

1. **Open autoexec.bat in a text editor.**
2. **Change the path to startnet.bat to the file you used in the previous installation.**

   For example:

   ```
   @call c:\nwclient\startnet.bat
   ```

3. **Save the change and close the autoexec.bat file.**
4. **Open the config.sys in the text editor.**
5. **Comment out the location.exe in the [common] section.**

   For example:

   ```
   rem c:\novell\client32\location.exe
   ```

6. **Save your changes and exit the editor.**
7. **Reboot the workstation.**

To restore full VLM functionality for Windows, you will need to run the VLM install. Make sure you answer yes when asked to replace the existing files with the VLM files.

chapter 4

Optimizing

You can optimize Novell® Client™ for DOS and Windows 3.1*x* software for your networking environment. By default, the client is configured for high speed with moderate use of memory and data protection. You can adjust the client to optimize its performance in any of these areas. Be aware that optimizing the client in one area can mean a performance cost in other areas.

You can also optimize modems on your network and enable or disable the Novell IP Gateway.

Editing the Net.cfg File

You can optimize Novel Client for DOS and Windows 3.1*x* software for your networking environment. By default, the client is configured for high speed with moderate use of memory and data protection. You can adjust the client to optimize its performance in any of these areas.

Changes to the Novell Client configuration are made using the net.cfg file. Net.cfg is an ASCII text file that maintains configuration information for Novell Client modules. When they load, several modules access information in this file to establish starting values and environment variables.

Net.cfg has several sections that roughly reflect the modules that use the section. For example, nois.exe uses the NIOS section of the file. Each section has a set of parameters and values. Parameters are the possible options that can be set for the module. Most values are restricted to a range or set of choices.

Net.cfg is located in the Novell Client working directory (Novell\Client32, by default).

Note: Additional information including extensive examples of the net.cfg parameters is located in the net.cfg help file (nwcfgdw.hlp) in the Products/Doswin32/Nls/*Language* directory.

To make changes to the net.cfg file, complete the following steps.

1. **Do one of the following:**

   - Open the computer's net.cfg in a text editor.
   - Open net.cfg by doing the following:

     a. Double-click the Client Control Panel in the Novell Client.
     b. Double-click Locations.
     c. Click a location in the Locations scroll box.
     d. Click Advanced > Edit net.cfg.

     The net.cfg text file is brought up in a text editor.

2. **Determine which parameter you want to modify.**

   For example, you might want to modify the NAME CONTEXT parameter.

3. **Locate the section heading for the parameter. If the section does not yet exist in the file, type the name of the section on a new line, flush with the left margin.**

   For example, NAME CONTEXT must appear under the NETWARE DOS REQUESTER section.

4. **Enter the parameter and the value under the appropriate section.**

   Sections are always flush with the left margin; all parameters (except the parameters in the NETBIOS and Named Pipes sections) are indented. Do not list more than one parameter per line. The order of the parameters in a section is not significant.

   If a parameter is not listed in net.cfg, but the module that uses it is loaded, the module uses the default value, listed in the description of the parameter. For example:

   ```
   NETWARE DOS REQUESTER
       NAME CONTEXT = "container.organization"
   ```

   For specific information about configuration parameters, see "Configuration Parameters" on page 131.

5. **Save your changes and exit the editor.**

6. **Reload the Novell Client software or reboot the workstation to make the changes effective.**

Minimizing Memory Usage

You can limit the amount of memory the client uses by adjusting two client parameters: File Cache Level and Name Context.

Important: Adjusting the memory usage might lead to decreased speed and data integrity.

1. **Do one of the following:**

   - Open the workstation's net.cfg file in a text editor.
   - Open net.cfg by doing the following:

     a. Double-click the Client Control Panel in the Novell Client.
     b. Double-click Locations.
     c. Click a location in the Locations scroll box.
     d. Click Advanced > Edit net.cfg.

     The net.cfg text file is brought up in a text editor.

2. **Set the following parameters to specified values for optimal memory usage, using net.cfg syntax.**

   For specific information about configuration parameters and the syntax, see "Configuration Parameters" on page 131.

Parameter	Value
"File Cache Level" on page 140	0
"Name Context" on page 145	0

3. **Save your changes and exit the editor.**

4. **Reload the client software or reboot the workstation to make the changes effective.**

Ensuring Data Integrity

If the users on your network require maximum data integrity, you can set several client parameters to avoid data loss.

Important: When the client is maximized for data integrity, it might function more slowly than when maximized for speed.

1. **Do one of the following:**

   - Open the workstation's net.cfg file in a text editor.
   - Open net.cfg by doing the following:

     a. Double-click the Client Control Panel in the Novell Client.
     b. Double-click Locations.
     c. Click a location in the Locations scroll box.
     d. Click Advanced > Edit net.cfg.

     The net.cfg text file is brought up in a text editor.

2. **Set the following parameters to specified values for optimal data integrity, using net.cfg syntax.**

   For specific information about configuration parameters and the syntax, see "Configuration Parameters" on page 131.

Parameter	Value
"Auto Reconnect Level" on page 137	3
"Checksum" on page 138	2 or 3
"Close Behind Ticks" on page 138	0
"Signature Level" on page 155	3
"True Commit" on page 159	On

3. **Save your changes and exit the editor.**

4. **Reload the client software or reboot the workstation to make the changes effective.**

Increasing Speed

By default, the client is configured for optimum speed with good data integrity. You can modify the following parameters in the net.cfg file to maximize the speed at which the client performs network operations.

Important: When the client is maximized for speed, you might see reduced performance in memory and data integrity.

1. **Do one of the following:**

   - Open the workstation's net.cfg file in a text editor.
   - Open net.cfg by doing the following:

     a. Double-click the Client Control Panel in the Novell Client.
     b. Double-click Locations.
     c. Click a location in the Locations scroll box.
     d. Click Advanced > Edit net.cfg.

     The net.cfg text file is brought up in a text editor.

2. **Set the following parameters to specified values for optimal speed, using net.cfg syntax.**

   For specific information about configuration parameters and the syntax, see "Configuration Parameters" on page 131.

Parameter	Value
"Cache Writes" on page 138	On
"Close Behind Ticks" on page 138	>18
"Delay Writes" on page 139	On
"File Cache Level" on page 140	3 or 4
"LIP Start Size" on page 143	576 for WAN connectivity or 65535 for LAN connectivity
"Max Cache Size" on page 144	Depends on RAM free memory available
"Name Context" on page 145	2
"PB Buffers" on page 151	1 to 10

Parameter	Value
“Pburst Read Window Size” on page 151	24 for most small networks
“Pburst Write Window Size” on page 151	24 for most small networks 64 for small LANs
“Signature Level” on page 155	0 (Before changing this setting, make sure your users do not require high security.)
“True Commit” on page 159	Off (unless you require a high level of data integrity)
“Use Video BIOS” on page 159	Off
IPX™ Frame Types	Bind only to the necessary frame types (Note that 32-bit drivers do not use net.cfg—the frame type must be specified on the driver's load line.)

3. **Save your changes and exit the editor.**

4. **Reload the client software or reboot the workstation to make the changes effective.**

Enabling and Disabling the Gateway

The gateway client includes a switcher program that switches between Novell IPX/IP Gateway operation and standard WINSOCK operation. The purpose of this program is to switch the client workstation for TCP/IP to TCP/IPX.

This switcher (gwsw16.exe) uses the novws.ini file by changing the gateway parameter under the [STACK] heading. To enable TCP/IP, the gateway parameter must be set to zero (0). This instructs the winsock.dll to use IP. If the gateway parameter is set to one (1), winsock.dll launches the gateway task to establish a control connection using TCP/IPX.

The following is an example novws.ini file for Windows* 3.1:

```
[stack]
gateway=x
ipxGateway=y
```

Optimizing Modems

Adding Modems and Bus Adapters

When you install the Novell Client, you might find that the Standard or ISDN modem you want to use to dial in to the network is not included in the list of available modems. In most cases, the Generic settings work for unidentified Standard modems.

However, if you need to specify settings for a particular modem type, you must modify the modem database and add the appropriate modem details. Then, when you run Locations from the Client Control Panel and choose to change the properties of a particular location, your modem is on the list and you can select it.

Adding a New Modem and Bus Adapter Model for an Existing Manufacturer

To add a new modem model when the manufacturer is already listed, you need to edit the .ini file for that manufacturer and enter the required details about the new model.

1. **Open the file modem.ini in c:\novell\client32.**
2. **Find the name of the .ini or .isd file for the manufacturer.**

   Configuration files for ISDN modems have the .isd extension.
3. **Close the modem.ini file.**
4. **Open the .ini or .isd file.**

   The file is located in the c:\novell\client32\modems directory.
5. **Add the name of the modem model to the [Models] section.**
6. **Add a section for the modem and enter the details for the modem in this section.**

   See the modem's documentation to find the values to add.
7. **Close the file.**

Adding a New Modem or Bus Adapter Manufacturer and Model

To add a new modem model when the manufacturer is not already listed, you need to create the .ini or .isd file and add the new file name to the modem.ini file.

1. **Create a .ini or .isd file in the c:\novell\client32\modems directory.**

   You can use an existing file as a model.

2. **Add the name of the modem model to the [Models] section.**

3. **Add a section for the modem and enter the details for the modem in this section.**

   See the modem's documentation to find the values to add.

4. **Save and close the file.**

5. **Add the name of this file to c:\novell\client32\modem.ini in the appropriate section.**

   For example:

   ```
   Hayes=hayes.ini
   ```

6. **Save and close the file.**

Improving Modem Response Time

Here are some tips for improving response times when you connect to NetWare networks using a modem.

- Do not use the Indicate Expandable Branches feature.

  If you use the Indicate Expandable Branches command in the Windows 3.*x* File Manager, creating the Directory tree might take longer. Using this feature adds a plus sign (+) to directories with subdirectories. It also generates additional Windows 3.*x* and network processing.

- Customize how frequently the NetWare User Tools utility updates the resource list.

Change the time interval between updates to the resource list by editing the ObjectLBXUpdateInterval_Millisecs=300 line in the [Modem] section of \windows\netware.ini. For example:

```
ObjectLBXUpdateInterval_Millisecs=300
```

Optimizing Module Load Order

Client functionality is divided into separate pieces of software, or modules. A module can be a LAN driver for a network board, a protocol driver, or a driver for other network functions, such network backup. The client workstation requires certain core modules to be loaded on the workstation in a particular order, regardless of the workstation's configuration. Other modules can also be loaded to provide additional functionality to the client.

Modules are added to the client's startnet.bat during installation. However, once you have installed the client, you can load different modules or optimize the load order by "Editing the Startnet.bat" on page 93.

Core Client Modules

Since the client architecture uses the NetWare Input / Output Subsystem (NIOS) to manage modules, nios.exe must be loaded before you can load any other modules. Then, the client workstation requires certain other core modules to be loaded.

Important: For increased performance and stability, you should use the 32-bit core modules and a 32-bit ODI™ LAN driver when one is available for your workstation's network board.

32-bit Core Modules

The following are the core modules for the 32-bit Client:

nios.exe
nbic32.nlm
lslc32.nlm
cmsm.nlm
a TSM such as ethertsm.nlm

a 32-bit LAN driver
trannta.nlm
ipx.nlm
client32.nlm.

Other modules pertaining to specific protocol, LAN driver, and network management functionality are loaded at various points in the load order. See “32-Bit Load Order Examples” on page 94.

16-bit Core Modules

The following are the core modules for the 16-bit Client:

nios.exe
nbic32.nlm
lsl.com
n16odi.com
nesl.com
a 16-bit LAN driver
pc32mlid.lan
trannta.nlm
ipx.nlm
client32.nlm.

Important: For increased performance and stability, you should use the 32-bit core modules and a 32-bit ODI LAN driver when one is available for your workstation's network board.

Other modules pertaining to specific protocol, LAN driver, and network management functionality are loaded at various points in the load order. See “16-Bit Load Order Examples” on page 95.

LAN Driver Modules

The Novell Client software supports 16-bit and 32-bit ODI (Open Data-Link Interface™) LAN drivers. For increased performance and stability, you should use a 32-bit ODI LAN driver when one is available for your workstation's network board.

You should load and modify your LAN driver during installation. However, if you need to modify your LAN driver settings after installing, you can edit the startnet.bat. See “Editing the Startnet.bat” on page 93.

Protocol Modules

You can install support for protocols by loading the appropriate module on your users' workstations. For example, you might want to load tcpip.nlm and nwip.nlm if users are connecting to the Internet and are using an NWIP server. For more information, see "Module Descriptions" on page 97.

Modules are added to the client's startnet.bat during installation. However, once you have installed the client, you can load different modules or optimize the load order by "Editing the Startnet.bat" on page 93.

Network Support Modules

You can install several modules for added network management functionality. For more information, see "Description of Network Management Modules" on page 101.

Modules are added to the client's startnet.bat during installation. However, once you have installed the client, you can load different modules or optimize the load order by editing the startnet.bat.

Editing the Startnet.bat

Startnet.bat contains commands that load the modules necessary to attach to a Novell NetWare network. The client installation program edits a workstation's autoexec.bat to call startnet.bat so that the network loads automatically each time the workstation boots.

You can edit the startnet.bat file to load only the network drivers and modules you want to use or to optimize the way the modules load. For specific load order examples, see "32-Bit Load Order Examples" on page 94 or "16-Bit Load Order Examples" on page 95.

To edit the startnet.bat file, complete the following steps.

1. **Do one of the following:**

   - Open the workstation's startnet.bat file in a text editor.

     Startnet.bat is located in the client working directory (novell\client32, by default).

- If you have multiple locations, open the startnet.bat corresponding to the location profile you want to edit by doing the following:

  a. Double-click the Client Control Panel in the Novell Client.

  b. Double-click Locations.

  c. Click a location in the Locations scroll box.

  d. Click Advanced > Edit startnet.bat.

  The startnet.bat file is brought up in a text editor.

2. **Edit the startnet.bat as needed using the module commands.**

   For more specific information about the module commands, see "Using Module Commands" on page 97.

   For specific information about basic load order, see "32-Bit Load Order Examples" on page 94 or "16-Bit Load Order Examples" on page 95.

3. **Save your changes and exit the editor.**

4. **Reboot the workstation to make the changes effective.**

32-Bit Load Order Examples

Because there are several different ways to configure your client software, the load order in the startnet.bat for each configuration might differ slightly.

IPX Client Load Order (32-Bit)

```
NIOS.EXE
LOAD NBIC32.NLM
LOAD LSLC32.NLM
LOAD CMSM.NLM
LOAD [ether | token | fddi]TSM.NLM
LOAD 32-bit ODI_driver.LAN [configuration parameters
  and IPX frame type]
LOAD TRANNTA.NLM
LOAD IPX.NLM
LOAD SPX_SKTS.NLM
LOAD CLIENT32.NLM
```

IPX Client with NWIP Load Order (32-Bit)

```
NIOS.EXE
LOAD NBIC32.NLM
LOAD LSLC32.NLM
LOAD CMSM.NLM
LOAD [ether | token | fddi]TSM.NLM
LOAD 32-bit ODI_driver.LAN [configuration parameters
  and IPX frame type]
LOAD TCPIP.NLM
LOAD TRANNTA.NLM
LOAD IPX.NLM
LOAD NWIP.NLM
LOAD SPX_SKTS.NLM
LOAD CLIENT32.NLM
```

16-Bit Load Order Examples

16-bit ODI drivers require two modules (n16odi.com and pc32mlid.lan) that enable the 32-bit NIOS to communicate with the 16-bit ODI LAN driver and a shim (pc32mlid.lan) to communicate with the 32-bit ODI modules. These are loaded in startnet.bat after lsl.com. Then the 16-bit ODI-compliant protocol stacks are loaded.

Unlike the 32-bit ODI LAN drivers, 16-bit ODI LAN drivers access net.cfg when loading to find configuration information.

Important: If you are using 16-bit NDIS*-compliant stacks, you must load ODINSUP.COM first and then the 16-bit NDIS stack.

Because there are several different ways to configure your client software, the load order in the startnet.bat for each configuration might differ slightly.

IPX Client Load Order (16-Bit)

```
NIOS.EXE
LOAD NBIC32.NLM
LH LSL.COM
LH N16ODI.COM
LH NESL.COM
LH 16-bit ODI LAN driver.COM
LOAD LSLC32.NLM
LOAD PC32MLID.LAN
LOAD TRANNTA.NLM
LOAD IPX.NLM
LOAD SPX_SKTS.NLM
LOAD CLIENT32.NLM
```

IPX with NWIP Client Load Order (16-Bit)

```
NIOS.EXE
LOAD NBIC32.NLM
LH LSL.COM
LH N16ODI.COM
LH NESL.COM
LH 16-bit ODI LAN driver.COM
LOAD LSLC32.NLM
LOAD PC32MLID.LAN
LOAD TCPIP.NLM
LOAD TRANNTA.NLM
LOAD IPX.NLM
LOAD NWIP.NLM
LOAD SPX_SKTS.NLM
LOAD CLIENT32.NLM
```

Using Module Commands

Commands are internal programs in NIOS that help you manage the client software. For example, you can use the LOAD command to add modules to NIOS. The commands run from a DOS prompt. You must have nios.exe loaded on the workstation to run the commands.

Command	Description	Syntax	Example
ENABLE | DISABLE	Switches the client modules on or off.	ENABLE | DISABLE *function*	ENABLE LOGGING
LOAD | UNLOAD	Loads a client module onto the NIOS core. Startnet.bat uses LOAD commands to load NLM software onto the workstation.	LOAD | UNLOAD *module_name*	UNLOAD client32.nlm
MODULES	Lists and displays information about the Client modules loaded on the workstation.	MODULES	MODULES

Note: Currently, LOGGING is the only parameter available to use with ENABLE | DISABLE. Enabling LOGGING creates or appends to a nios.log file in the working directory. The log file contains information about client software events. You can specify another name and path for the log file in the net.cfg file. You can also enable LOGGING by adding a /L to the nios.exe command line.

Module Descriptions

Note: ODI LAN drivers are supplied by network board manufacturers and are not included in these descriptions. Driver settings vary, but most drivers include settings for the hardware interrupt (IRQ), base I/O port, frame type, retries, and node address.32-bit ODI LAN drivers do not use net.cfg for configuration parameters. Enter configuration parameters on the load line. For example:

```
LOAD CNE2000.LAN FRAME=Ethernet_802.2 IRQ=3 PORT=300
```

Module	Description	Dependencies	Section in the Net.cfg File
client32.nlm	Extends DOS to include network resources—similar to NetWare DOS Requester™ (VLM™) software and the NETX shell.	“Core Client Modules” on page 91	NetWare DOS Requester
ethertsm.nlm	The Topology Specific Module™ (TSM™) for Ethernet networks. Manages operations and provides support for all Ethernet frame types.	nios.exe nbic32.nlm lslc32.nlm cmsm.nlm	
fdditsm.nlm	The Topology Specific Module (TSM) for Fiber Distributed Data Interface (FDDI) networks. Manages operations and provides support for all FDDI frame types.	nios.exe nbic32.nlm lslc32.nlm cmsm.nlm	
ipx.nlm	Transports data using the Internetwork Packet Exchange™ (IPX) and Sequenced Packet Exchange™ (SPX™) protocols.	“Core Client Modules” on page 91	Protocol IPX
lsl.com	The 16-bit Link Support Layer (LSL) for the Novell Client. Allows one network board to service several communications protocol stacks. Also allows several network boards to service the same protocol stack.		Link Support
lslc32.nlm	The 32-bit Link Support Layer (LSL). Allows one network board to service several communications protocol stacks and several network boards to service the same protocol stack.	nios.exe	Link Support

Module	Description	Dependencies	Section in the Net.cfg File
n16odi.com	Coordinates memory access between NIOS and the 16-bit lsl.com module. Prevents NIOS from running foreground events while lsl.com is using real mode interrupts. Enables you to load: pdos[eth | tok | fddi].com pdosmlid.nlm pc32mlid.lan	nios.exe (can load before or after) lsl.com	
nbic32.nlm	Provides the capability for ODI drivers to detect advanced bus hardware. In addition, NBI provides ODI drivers with a standard mechanism for retrieving hardware's configuration information.		
nesl.com	Manages events for the 16-bit real mode environment. Its function is similar to lsl.com but it directs event objects instead of data objects.	lsl.com	
nios.exe	The first module loaded. Creates the flat memory environment needed to load other components. Controls the loading and unloading of other client modules and serves as the interface between the operating system and the client.	Memory manager (such as himem.sys, emm386.exe, qemm, or 386max)	NIOS
pc32mlid.lan	Enables 32-bit ODI stacks to communicate with 16-bit ODI LAN drivers.	“16-bit Core Modules” on page 92	
pdosmlid.nlm	Enables the 32-bit ODI modules to communicate with 16-bit protocol stacks.	“16-bit Core Modules” on page 92 pdos[eth | tok | fddi].com	
spx_skts.nlm	Enables the IPX/SPX protocols under the Novell WINSOCK.DLL.	“Core Client Modules” on page 91	

Module	Description	Dependencies	Section in the Net.cfg File
sroute.nlm	Enables communication across FDDI and IBM token-ring network bridges. Configure using options on the module's LOAD line. See “Setting Up FDDI and Token-Ring Source Routing” on page 15.	“16-bit Core Modules” on page 92	
tcpip.nlm	Transports data using Transmission Control Protocols (TCP) and (IP) Internet Protocols.	“Core Client Modules” on page 91	Protocol TCPIP
tokentsm.nlm	The Topology Specific Module (TSM) for token ring networks. Manages operations and provides support for all token-ring frame types.	“Core Client Modules” on page 91	
trannta.nlm	The Transport NetWare Transport Agent provides an interface for Microsoft TCP/IP stack, Novell TCP/IP stack, and Novell IPX stack so that packets are sent and received regardless of the protocol stack used.	ipx.nlm tcpip.nlm LAN driver	
<32-bit Driver Specific>.lan		“Core Client Modules” on page 91	
<16-bit Driver Specific>.com		lsl.com (if LAN driver)	

Description of Network Management Modules

Module	Description	Dependencies	Section in the Net.cfg File
hostmib.nlm	Enables the workstation to be managed over SNMP using the Host Resources MIB database format.	snmp.nlm	Host MIB
nmr.nlm	Provides information about a workstation to network management utilities such as ManageWise®.	ipx.nlm	
snmp.nlm	Enables the workstation to be monitored and controlled by management consoles over Simple Network Management Protocol. It also implements the system, interfaces, and SNMP groups of MIB-II. An implementation of an extensible SNMP 1.0 agent.	nios.exe lslc32.nlm nbic32.nlm cmsm.nlm a TSM such as ethertsm.nlm ODI LAN drivers ipx.nlm	Desktop SNMP
snmpipx.nlm	Implements an IPX transport provider for SNMP. It monitors the IPX socket to receive SNMP request PDUs and to send out the SNMP reply PDUs.	ipx.nlm snmp.nlm	SNMP Transport Provider IPX
snmpudp.nlm	Implements a UDP transport provider for SNMP. It monitors the SNMP well-known port to receive SNMP request PDUs and to send out the SNMP reply PDUs.	snmp.nlm tcpip.nlm Note: Load snmp.nlm first, then tcpip.nlm, and then snmpudp.nlm.	SNMP Transport Provider UDP
tsasms.nlm	Provides workstation support for NetWare Storage Management Services (SMS). You can use tsa.nlm and SMS to create backup copies of local files on a network storage device.		NetWare DOS TSA

chapter 5

Managing

As you manage your network, you will need to inform users about how to use the network. “Using the Client” on page 103 provides users with important information about using the Novell® Client™ software.

You might also find additional features or functions you will want to add to the client such as the following:

- “Corporate Dial-in Services” on page 115 explains how to create and maintain corporate phone book entries that enable users to access commonly called numbers.
- “Restricting User Access” on page 118 explains how to restrict access to several options available through NetWare User Tools.
- “Specifying Capture Defaults” on page 121 explains how to specify capture defaults for network users.

Using the Client

As a network administrator, you must provide information to users on how to access and use network resources. Novell provides several tools to help you distribute this information. You can direct your users to the online help included with the client software, you can provide access to the documentation included here, or you can print and distribute the information included here.

Logging In to the Network

You can log in to a NetWare® network from a DOS prompt or from Windows if you have an account on a NetWare server or Directory tree and you have the client software running on the workstation.

Logging In to the Network Whenever You Start Windows

If you want to log in every time you boot the workstation, you can add the LOGIN command line in the autoexec.bat file or, for Windows workstations, you can place the Login icon in the Startup group or add login.exe to the load line in the win.ini file. For more information, see the NetWare Login Help.

1. **At the DOS prompt, enter Win.**
2. **Enter your name and password.**

   Windows starts and you are logged in to the network.

Logging In to the Network When Windows Is Already Running

1. **In the Novell Client Program Group, double-click NetWare Login.**

2. **Enter your name and password.**

Logging In to the Network from DOS

1. **At the DOS prompt, change to the first network drive (usually F:) by entering**

   drive letter:

2. **Enter**

   LOGIN *username*

   For example:

   LOGIN user_1

   If your context is not set, you must enter your username and context. For example, to log in to context sales.corp as user user_1, enter

   LOGIN user_1.sales.corp

3. **Enter your password.**

Additional Links

"Using NetWare User Tools" on page 106
"Changing Your Password" on page 107
"Mapping a Network Drive" on page 108
"Capturing a Print Queue" on page 110
"Setting Default Printer Settings" on page 111
"Ending the Capture of a Print Queue" on page 113
"Sending NetWare Messages" on page 114

Using NetWare User Tools

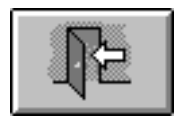
Most network functions such as changing passwords, mapping drives and network connections, mapping printers, sending network messages, and setting NetWare settings are done in NetWare User Tools.

1. **In Windows, open the Novell Client User Group.**

2. **Double-click NetWare User Tools.**

Extensive online help is available in NetWare User Tools.

3. **To exit User Tools, click Exit.**



Additional Links

“Logging In to the Network” on page 104
“Changing Your Password” on page 107
“Mapping a Network Drive” on page 108
“Capturing a Print Queue” on page 110
“Setting Default Printer Settings” on page 111
“Ending the Capture of a Print Queue” on page 113
“Sending NetWare Messages” on page 114

Changing Your Password

You can change the password for any connection on the network.

1. **In the Novell Client User Group, double-click NetWare User Tools.**

2. **Click NetWare Connections.**

3. **From the Connections list, click the resource you want to change the password for.**

4. **(Conditional) If you are not connected to the resource, do the following:**

   4a. Click a resource in the Resources list and then click Login.

   An NDS™ (NetWare 4™) resource has a tree icon. A bindery (NetWare 3™) resource has a server icon. Click the appropriate resource for your type of connection.

   4b. Enter your name and password, and then click OK.

5. **Click Set Pass.**

6. **Enter your current password in Old Password.**

7. **Enter your new password in New Password.**

8. **To verify your new password, re-enter your new password in Retype New Password.**

9. **(Optional) To synchronize your passwords for all your NetWare connections, check the Synchronize Password for All Connections check box.**

10. **Click OK.**

Additional Links

"Logging In to the Network" on page 104
"Using NetWare User Tools" on page 106
"Mapping a Network Drive" on page 108
"Capturing a Print Queue" on page 110
"Setting Default Printer Settings" on page 111
"Ending the Capture of a Print Queue" on page 113
"Sending NetWare Messages" on page 114

Mapping a Network Drive

You can create a drive mapping in NetWare User Tools using the drag-and-drop method or the Map button. You can also map drives with the NetWare DOS utility MAP.

Mappings made in NetWare User Tools can be created each time you enter Windows* by permanently adding them to your Windows setup. Mappings can also be global so they appear in DOS sessions started from Windows.

1. **In the Novell Client User Group, double-click NetWare User Tools.**

2. **Click Drive Connections.**

3. **From the Resources list, click the resource (Volume, Directory, or Directory Map object) you want to map a drive to.**

   If the resource you want is not available, make sure you are connected to the NDS resource, bindery server, or workgroup containing the resource.

   You can browse down a level by clicking the resource name.

4. **Do one of the following:**

   4a. **Drag the resource from the Resources list to the desired drive and drop it.**

   4b. **Click the drive you want to map the resource to and then click Map.**

   You can choose an unmapped drive or replace an existing drive mapping.

   The mapped resource appears by the drive letter.

5. **Click Drive Type.**

6. **(Optional) To permanently add the mapping to your Windows setup, check the Permanent Drive check box.**

7. **(Optional) Check the Search Drive check box.**

8. **(Optional) Position the search drive in the search path using the arrows in the Position Search Drive in Path area.**

9. **Click OK.**

Additional Links

"Logging In to the Network" on page 104
"Using NetWare User Tools" on page 106
"Changing Your Password" on page 107
"Capturing a Print Queue" on page 110
"Setting Default Printer Settings" on page 111
"Ending the Capture of a Print Queue" on page 113
"Sending NetWare Messages" on page 114

Capturing a Print Queue

You can capture (connect to) a print queue so that everything printed from your workstation is sent to that print queue. You can use either the drag-and-drop method or the Capture button to capture a print queue.

When you capture a printer, default printer settings are applied to that capture. These default settings can come from one of three different sources:

- Current LPT Only

  The Current LPT Only setting will apply to only the printer captured from that particular port.

- Global (All) LPTs

  The Global (All) LPTs settings will apply to all printers from all ports that you capture in the future.

- Standard capture defaults

  The standard capture defaults apply if you do not check either the Current LPT Only or Global (All) LPTs check box in the NetWare Settings for LPT... dialog box.

For more information on setting printer defaults see “Setting Default Printer Settings” on page 111.

1. **In the Novell Client User Group, double-click NetWare User Tools.**

2. **Click NetWare Printer Connections.**

3. **Select the print queue you want captured from the Resources list.**

   If the print queue you want connected is not available, make sure you are connected to the NDS resource, server, or workgroup containing the resource. Use the NetWare Connections tool to establish any necessary connections.

4. **Do one of the following:**

   - Drag the print queue to the desired port in the Ports list and drop it.
   - Select the port name (LPT:) to use for the connection from the Ports list and then click Capture.

   A capture icon appears by the port name. You can make the capture permanent by clicking Permanent.

Additional Links

"Logging In to the Network" on page 104
"Using NetWare User Tools" on page 106
"Changing Your Password" on page 107
"Mapping a Network Drive" on page 108
"Setting Default Printer Settings" on page 111
"Ending the Capture of a Print Queue" on page 113
"Sending NetWare Messages" on page 114

Setting Default Printer Settings

You can set default printer settings for the printer you are capturing (or connecting to) or for all other printers that you capture in the future.

When you capture a printer, default printer settings are applied to that capture. These default settings can come from one of three different sources:

- Current LPT Only

  The Current LPT Only setting will apply to only the printer captured from that particular port.

- Global (All) LPTs

  The Global (All) LPTs settings will apply to all printers from all ports that you capture in the future.

- Standard capture defaults

  The standard capture defaults apply if you do not check either the Current LPT Only or Global (All) LPTs check box in the NetWare Settings for LPT... dialog box.

1. **In the Novell Client User Group, double-click NetWare User Tools.**

2. **Click NetWare Printer Connections.**

3. **Capture a port to a print queue or click a port that is already captured.**

   See “Capturing a Print Queue” on page 110.

4. **Click LPT Settings.**

   Make sure that the printer settings are as you want them.

5. **Click Defaults >>.**

6. **Do one of the following:**

   - Check the Current LPT Only check box to have these settings apply only to this printer.
   - Check the Global (All) LPTs check box to have these settings apply to this printer and all other printers that you capture in the future.

7. **Click Save > OK.**

Additional Links

"Logging In to the Network" on page 104
"Using NetWare User Tools" on page 106
"Changing Your Password" on page 107
"Mapping a Network Drive" on page 108
"Capturing a Print Queue" on page 110
"Ending the Capture of a Print Queue" on page 113
"Sending NetWare Messages" on page 114

Ending the Capture of a Print Queue

You can end (disconnect) the capture of a print queue so that print jobs from the workstation are no longer sent to that print queue. You can use either the drag-and-drop method or the End Capture button to disconnect.

Note: If you delete a permanent capture, the capture is removed from your Windows setup file.

1. **In the Novell Client User Group, double-click NetWare User Tools.**

2. **Click NetWare Printer Connections.**

3. **From the Ports list, select the port the print queue is captured to.**

4. **Do one of the following:**

   - Drag the print queue to the Resources list and drop it.
   - Click End Capture.

   The Capture icon by the port name is removed. You can now capture another print queue to the port.

Additional Links

"Logging In to the Network" on page 104
"Using NetWare User Tools" on page 106
"Changing Your Password" on page 107
"Mapping a Network Drive" on page 108
"Capturing a Print Queue" on page 110
"Setting Default Printer Settings" on page 111
"Sending NetWare Messages" on page 114

Sending NetWare Messages

You can send a message of up to 256 characters to a user or a group. The message appears on the screen in a NetWare Broadcast Message box. You can send the same message to different users or groups. The message is saved in the Message box until you replace it or exit the Send Messages tool.

Note: If the user has broadcast messages turned off, the user doesn't receive the message.

1. **In the Novell Client User Group, double-click NetWare User Tools.**

2. **Click NetWare Send Messages.**

3. **From Connections, click the resource (server) for the user or group you want to send a message to.**

   The user or group might have both a bindery and an NDS connection. The type of connection you choose determines the length of the message a user can receive.

4. **From Resources, click the user or group you want to send a message to.**

   You can select only one user or one group.

   Make sure you are attached to the server that the user or group is attached to. If no users or groups appear in Resources, click the Show Users or Show Groups button.

5. **Type your message in the Message box.**

6. **Click Send.**

   After the message is received, the Send Message Info box appears.

7. **(Optional) To send the same message to another user or group, click another user or group from Resources and then click Send.**

Additional Links

"Logging In to the Network" on page 104
"Using NetWare User Tools" on page 106
"Changing Your Password" on page 107
"Mapping a Network Drive" on page 108
"Capturing a Print Queue" on page 110
"Setting Default Printer Settings" on page 111
"Ending the Capture of a Print Queue" on page 113

Corporate Dial-in Services

Corporate dial-in services are NDS Dial-Up Connection objects created using NetWare Administrator which can be used as both Windows 3.*x* dial-in services or as Windows 95 Dial-Up Connections in a user's Dial-Up Networking folder.

Within NetWare Administrator, the term Dial-up Connection is used; for example, you create a Dial-Up Connection object. However, this object can also be used by Novell Client for DOS and Windows 3.1*x* users with their Phone Books. When you create a dial-in service, all users with Browse and Read rights to the container can add it as a dial-in service to their Phone Books.

Important: Before you can create a corporate dial-in service, your network must be using NetWare 4.1 or later, and you must be using a client workstation running NetWare Administrator 4.10 or later (nwadmin.exe, nwadmn3x.exe, or nwadmin32.exe). You must have the Create right to the Container object where you want to create a Dial-Up Connection. By creating a Dial-up Connection object on your local workstation, you can try out the connection before you copy it to the server for access by other users. The rules (such as naming conventions) for creating a Dial-Up Connection object are the same as for any other type of leaf object.

Creating a Corporate Dial-in Service

1. **Start NetWare Administrator.**

   The dialog boxes in NetWare Administrator ask for the similar information as when creating or modifying dial-in services using the Phone Book or Dialer Assistant. Occasionally, a field or selection list asks for information specific to Windows 3.*x* or Windows 95. Complete the relevant information only.

2. **Click the Container object that you want to contain the new Dial-Up Connection object.**

3. **Click Object > Create.**

4. **In the New Object list box, click Dial-Up Connection > OK.**

   The Create dialog box is displayed.

5. **Enter a name and a telephone number for the new object.**

   Depending on what selections you make here, other dialog boxes might be displayed.

6. **Complete the details as appropriate.**

7. **Click OK.**

   The new Dial-Up Connection is created.

   When you create a new Dial-Up Connection object, you have to click OK. Cancel is grayed out. OK saves the settings in all pages of the dialog box. Cancel closes the dialog box without saving the settings entered on any page.

Managing Corporate Dial-in Services

As a network administrator, you will want to manage the corporate dial-in services and make modifications as changes occur within your company.

Note: Before you can manage or update a corporate dial-in service, your network must be using NetWare 4.1 or later, and you must be using a client workstation running NetWare Administrator 4.10 or later (nwadmin.exe, nwadmn3x.exe, or nwadmin32.exe). The rules (such as naming conventions) for managing a Dial-Up Connection object are the same as for any other type of leaf object.

To change the properties of an existing corporate dial-in service, you must have the Create right to the object containing it.

To delete a dial-in service, you must have the Delete right to the object itself or to the container. You cannot "undo" a deletion; you would need to re-create the dial-in service and re-enter all the properties.

You can search for, move, and rename dial-in services in the same way as any other type of NDS leaf object.

Your network users can change the properties of any entry in their Phone Book. However, if the entry is a copied corporate Dial-in Service object, this is only a temporary change. When the Phone Book is next updated, the local definition is overwritten with the corporate one.

Likewise, if you update a corporate Dial-in Service object, the local copy of the dial-in service will be automatically updated throughout the network as users update their Phone Books. Any changes users have made to corporate entries previously copied will be lost, and the dial-in service will return to the original settings on the network. However, users' personal information, such as IP address, is not changed. Users do not even need to be aware of the update.

1. **Make sure you are connected to your network.**

2. **Open the Client Control Panel, and then double-click Phone Book.**

3. **Click Update.**

   Existing corporate entries are updated and any new ones are added to your Phone Book. A dialog box indicates how many

entries were added to the Phone Book and how many existing entries were updated.

4. **Check the new entries; you might need to complete some of the details. Also, you might want to edit some settings to match your local requirements.**

Specific instructions for using the Phone Book and updating dial-in services are included in the online help (mcp.hlp) included with the program. You can refer your users to this documentation.

Restricting User Access

You can disable certain network functions or prevent users from corrupting their work environment by restricting user access to NetWare User Tools, File Manager, Print Manager, Control Panel, and other programs. You can disable all or only portions of the user interface.

You create these restrictions by adding entries to the [Restrict] section in the netware.ini file. For those who use a network installation of Windows*, the client checks for a netware.ini file in the shared Windows directory. If such a file exists, it reads the restrictions from that location. This provides a secure location to store the restrictions. If you choose not to restrict the users of the shared Windows install, the client reads the private Windows copy of the netware.ini file.

Implementing Restrictions If Windows Is Installed on the Local Drive

If Windows is installed on a local hard drive, you need to make the changes to the local netware.ini file, either by copying an updated file or by editing the existing file to include the desired settings.

1. **Do one of the following:**

   - Open the current netware.ini file in a text editor.

     In a typical Windows installation, the netware.ini file is located in the c:\windows directory.

   - Create a new netware.ini file in a text editor.

2. **Make changes in the [Restrict] section, and then save the netware.ini file.**

   You might need to create the [Restrict] heading in the netware.ini file first.

   There are several user interface restrictions that can be included in the [Restrict] section. See "Restrictions Available under the [Restrict] Heading" on page 120.

3. **Make sure that the new file has replaced the old netware.ini in the same directory and then reboot the workstation.**

Implementing Restrictions If Windows Is Installed in a Shared Windows Directory on the Network

If Windows is installed in a shared Windows directory on the network, create a netware.ini file in that directory and add the [Restrict] section heading, along with any desired settings.

1. **Do one of the following:**

   - Open the current shared Windows netware.ini file in a text editor.
   - Create a new netware.ini file in a text editor.

2. **Make changes in the [Restrict] section, and then save the netware.ini file.**

   You might need to create the [Restrict] heading in the netware.ini file first.

   There are several user interface restrictions may be included in the [Restrict] section. See "Restrictions Available under the [Restrict] Heading" on page 120.

3. **Make sure that the new file has replaced the old netware.ini in the same directory and then reboot the workstation.**

Note: Only the [Restrict] section is read from the shared Windows directory, and only during the initial load of Windows. If you make any changes while Windows is running, Windows must be restarted for the changes to take effect.

Restrictions Available under the [Restrict] Heading

Several user interface restrictions can be included in the [Restrict] section of the netware.ini file. The following table explains each setting variable and lists the default values.

If the default is set to 0, the function is enabled and available to users. If the default is set to 1, the function is disabled and unavailable to users.

Change the values according to your desired setup (there is one exception to this rule. In UserTool, if the default is set to 0, the function is disabled and if the default is set to 1, the function is enabled).

Restriction	Description	Default
UserTool	Disables all user interfaces provided by netware.drv.	0
NoHot Key	Disables all Hot key access to interfaces provided by netware.drv.	1
NoDrives	Disables the NetWare Drive Connections (MAP) portion of the netware.drv interface.	1
NoLPTs	Disables the NetWare Printer Connections (CAPTURE) portion of the netware.drv interface.	1
NoConnection	Disables the NetWare Connections (LOGIN/ LOGOUT) portion of the netware.drv interface.	1
NoSend	Disables the NetWare Send Messages (SEND) portion of the netware.drv interface.	1
NoSettings	Disables the NetWare Settings portion of the netware.drv interface.	1

Restriction	Description	Default
NoUser1 NoUser2	Disables the user-definable buttons (1 and 2) portion of the netware.drv interface.	1 1
NoDefLPTSettings	Disables user access to edit the print flag default settings portion of the netware.drv interface. See “Specifying Capture Defaults” on page 121 for more information about setting print flag defaults.	1
NoNetworkBtn	Disables the display of a NetWare-specific button added to File Manager when the user has selected one or more files or directories on a network drive.	1
NoNDPS	Disables the loading and use of NDPS™ support.	1
NoLocation	Disables the loading and use of location profile support. Settings normally retrieved and stored in the current location are now retrieved and stored in the global configuration.	

Specifying Capture Defaults

As a network administrator, you can create a set of global defaults that determine which options users automatically have when they capture an LPT port using NetWare User Tools. The global defaults can then be distributed to all the users. You can also specify a set of capture flags for LPTs that are captured in NetWare User Tools.

Flags can be specified for each LPT (LPT-specific default) or they can be specified for all LPTs (global default). If LPT1 is captured, netware.drv first looks for defaults for LPT1. If the defaults are found, they are used. If not, netware.drv checks for a set of global defaults, which are used if

they exist. Otherwise, the initial flags assigned by the client software are used.

To create global default print capture settings, follow these steps,

1. **Capture a port to a queue using NetWare User Tools.**

   See “Capturing a Print Queue” on page 110.

2. **Click LPT Settings.**

3. **Modify settings as desired.**

   For example, turn off Form Feed and Banner, the two settings most commonly changed when setting up Capture statements.

4. **Click Defaults>> to expand the dialog, and then check the Global (All) LPTs check box.**

5. **Click Save.**

If the Current LPT Only box is checked, the default capture settings will apply only to the current LPT displayed in the title of the dialog box.

These settings are stored in the [Defaults] section of the netware.ini file. The entries are named LPT*x*-OPTIONS, where x is a number ranging from 0 to 9. The set of options stored under LPT0-OPTIONS is significant, because these are the global defaults. Options stored in LPT1-OPTIONS through LPT9-OPTIONS correspond to specific options for the LPT.

Netware.drv also has a switch available so you can disable the interface to prevent users from modifying the default capture settings. This allows you to dictate the defaults and prevent subsequent user modifications. To disable user access to the edit print flag default settings portion of the Netware.drv interface, you must add the NoDrfLPTSettings=1 to the [Restrict] section of the netware.ini file. See “Restricting User Access” on page 118 for more details about [Restrict] settings.

chapter 6

Troubleshooting

You might encounter some issues while installing, configuring, or using the client. If the information you are looking for is not available in this section, check the Setting Up, Optimizing, and Managing sections before calling your Certified Novell® Salesperson™ or Novell Technical Services℠.

Installation Issues

Novell Client for DOS and Windows 3.1*x* is an IPX Application

The Novell Client™ for DOS and Windows 3.1*x* is an IPX™ application. It can connect to IPX-only, IP-only, or mixed networks. NetWare® 5 IP-only servers must be running Compatibility Mode (scmd.nlm) and the network must have a Migration Agent on a NetWare 5 server.

Compatibility Mode allows IPX applications to function in IP-only networks. Compatibility Mode also allows workstations to communicate with services in IP-only networks if the Migration Agent is installed on any NetWare 5 servers. Compatibility Mode is dependent on the Service Location Protocol (SLP) for its operation.

Windows Setup Might Not Copy the Most Recent LAN Driver to the Client Directory

Sometimes the most recent LAN driver is not copied to the Client directory. If the driver does not remain resident when you reboot, check the date of the LAN driver in the client directory against the date of the driver in the doswin32\landrv32 directory. If these files do not match, copy the appropriate .lan and .ldi files to the Client directory on the workstation.

Client32.nlm Does Not Remain Resident

If client32.nlm does not remain resident, check the startnet.bat file configuration for this location and make sure you have the correct load order. See “Optimizing Module Load Order” on page 91 for more information.

DOS Installation Program Asks for Disk 1 and Then Hangs the Workstation

When running the DOS install for the Novell Client for DOS and Windows 3.1*x* (install.exe), the error message “Insert the NetWare Client 32 for DOS/Windows 3.1*x* Disk 1 into drive <drive letter>: or press <Alt><F10> to exit Install” appears. To resolve this, map root the drive and run install.exe again.

SPX Parameters Are Not Properly Carried Over from the VLM Client

If a workstation with the VLM™ client had SPX™ parameters set in the net.cfg file, those parameters are not in effect after installing the Novell Client. The reason is that the section that the SPX parameters reside under has changed from PROTOCOL SPX to PROTOCOL IPX. To have the SPX parameters work with the Novell Client, move them to the PROTOCOL IPX section.

Uninstalling the Client

There is no uninstall utility available for the Novell Client for DOS and Windows 3.1*x*. For detailed information about uninstalling or disabling the client, see “Uninstalling” on page 77.

TCP/IP Issues

Novell Client for DOS and Windows 3.1*x* is an IPX Application

The Novell Client for DOS and Windows 3.1*x* is an IPX application. It can connect to IPX-only, IP-only, or mixed networks. NetWare 5 IP-only servers must be running Compatibility Mode (scmd.nlm) and the network must have a Migration Agent on a NetWare 5 server.

Compatibility Mode allows IPX applications to function in IP-only networks. Compatibility Mode also allows workstations to communicate with services in IP-only networks if the Migration Agent is installed on any NetWare 5 servers. Compatibility Mode is dependent on the Service Location Protocol (SLP) for its operation.

Unable to Determine Problem with TCP/IP

The Novell Client uses the protocol stack tcpip.nlm. You can perform troubleshooting with ping.exe, a DOS-based utility, or with tcpmon.exe, a Windows-based utility. These utilities should be supplied by your TCP/IP vendor. Tcpmon.exe provides the following information which you can use to diagnose TCP/IP:

- TCP and UDP socket tables
- TCP and UDP connection statistics
- IP packet statistics
- The ARP table and route information
- DHCP address information

Determining TCP/IP Problems

1. **Determine your IP address and then ping your IP address in DOS.**

   If you do not get a response, TCP/IP could be configured incorrectly, you might not have received a DHCP address properly, or the IP address might be in use.

2. **Ping an IP address on your local network.**

   If this fails, the host might not be up, you might be having network problems, or the client workstation is having TCP/IP problems.

3. **Ping an IP address on a different network or on the Internet.**

   If this fails and the previous tests worked, you are probably having routing problems or the default router configured in your client TCP/IP is incorrect.

   If using DHCP, the default router configured on the DHCP server to give to every client might be improperly configured.

4. **Ping a domain name that is in your network to verify name resolution within your network.**

   If this fails, the default DNS server configured in TCP/IP is invalid or the DNS server is down. If using DHCP, the DNS server that is configured on the DHCP server is not properly configured.

5. **Ping a host on the Internet to verify name resolution to the Internet.**

   If this fails, the DNS server that forwards DNS requests out to the Internet is not working or the Internet DNS server that DNS points to is not working.

NetWare/IP Auto-Connection over Dial-Up Servers

In the LAN environment, NetWare/IP™ clients can be automatically configured by Dynamic Host Configuration Protocol (DHCP). This works only if your DHCP host can be configured for NetWare/IP client configuration records. In a Dial-Up environment, the NetWare/IP client usually depends on a DHCP host located in the dial-up server itself. Once again, this works only if the DHCP host in the dial-up server can be configured for NetWare/IP client configuration records. If you are using a dial-up server that cannot be so configured, then you must manually configure the client with a static IP address.

Incorrect IP Address Might Be Assigned If Two or More Locations Are Configured to Use TCP/IP with DHCP

If two or more locations are configured to use TCP/IP with DHCP on the same workstation and they exist on different IP networks, the wrong IP address might be assigned to a given location. To avoid this problem, turn off DHCP IP caching by specifying the DHCPCACHEIP option under the PROTOCOL TCPIP heading:

```
PROTOCOL TCPIP
DHCPCACHEIP = NO
```

NetWare/IP and the IP/IPX Gateway

The Novell IP gateway can operate as an IPX/IP gateway or an IP/IP gateway. IPX/IP is appropriate when the client is attached to an IPX network or to a network supporting both IPX and IP. We recommend that NetWare/IP not be used when the client is using the IPX/IP gateway.

IP/IP is appropriate when the client is bound to the IP protocols. Normally, NetWare/IP should be used in a configuration which supports user login and location of NetWare servers with the gateway through NDS™. If the preferred gateway server is specified by IP address and access control is disabled for the server, then NetWare/IP is not required when using the gateway. In an IP/IP Gateway configuration, NetWare/IP is required for access to other NetWare servers on the LAN.

General Issues

No Private DOS Box Support with Novell Client

The Novell Client does not support semi-private DOS sessions in Windows 3.*x* because it uses the same client32.nlm as the Novell Client for Windows 95. The Novell Client for Windows 95 cannot support private DOS sessions because 32-bit programs do not look at the private Virtual DOS Machine environment.

Norton Virus Protection Reports That Reboot.com Is Infected

The virus definitions from Norton dated April 1, 1996, report that reboot.com is infected with the vien.648 (d) virus. Novell has contacted Symantec* and confirmed that this is a false positive. Symantec has updated their definitions to exclude reboot.com. Reboot.com is used by the Automatic Client Upgrade program and allows administrators to reboot client workstations via the login script after a successful upgrade to the Novell Client.

appendix **A**

Net.cfg Parameters Library

Novell® Client™ software offers several parameters that you can adjust to customize the client for your network by "Editing the Net.cfg" on page 129.

You should decide which "Configuration Parameters" on page 131 you want to adjust during installation and what parameters you want to update after installation.

Editing the Net.cfg

You can optimize Novell Client for DOS and Windows 3.1*x* software for your networking environment. By default, the client is configured for high speed with moderate use of memory and data protection. You can adjust the client to optimize its performance in any of these areas.

Changes to the Novell Client configuration are made using the net.cfg file. Net.cfg is an ASCII text file that maintains configuration information for Novell Client modules. When they load, several modules access information in this file to establish starting values and environment variables.

Net.cfg has several sections that roughly reflect the modules that use the section. For example, nios.exe uses the NIOS section of the file. Each section has a set of parameters and values. Parameters are the possible options that can be set for the module. Most values are restricted to a range or set of choices.

Net.cfg is located in the Novell Client working directory (Novell\Client32, by default).

Hint: Additional information including extensive examples of the net.cfg parameters is located in the net.cfg help file (nwcfgdw.hlp) in the Products/Doswin32/Nls/*Language* directory.

To make changes to the net.cfg file, complete the following steps.

1. **Do one of the following:**

   - Open the computer's net.cfg in a text editor.
   - Open net.cfg by doing the following:

     a. Double-click the Client Control Panel in the Novell Client.
     b. Double-click Locations.
     c. Click a location in the Locations scroll box.
     d. Click Advanced > Edit net.cfg.

     The net.cfg text file is brought up in a text editor.

2. **Determine which parameter you want to modify.**

   For example, you might want to modify the NAME CONTEXT parameter.

3. **Locate the section heading for the parameter. If the section does not yet exist in the file, type the name of the section on a new line, flush with the left margin.**

   For example, NAME CONTEXT must appear under the NETWARE DOS REQUESTER section.

4. **Enter the parameter and the value under the appropriate section.**

   Sections are always flush with the left margin; all parameters (except the parameters in the NETBIOS and Named Pipes sections) are indented. Do not list more than one parameter per line. The order of the parameters in a section is not significant.

   If a parameter is not listed in net.cfg, but the module that uses it is loaded, the module uses the default value, listed in the description of the parameter. For example:

   ```
   NETWARE DOS REQUESTER
       NAME CONTEXT = "container.organization"
   ```

   For specific information about configuration parameters, see "Configuration Parameters" on page 131.

5. **Save your changes and exit the editor.**

6. **Reload the Novell Client software or reboot the workstation to make the changes effective.**

Configuration Parameters

Novell Client software offers several parameters that you can adjust to customize the client for your network. For example, you can adjust the way users log in to the network. You should decide what parameters you want to adjust during installation and what parameters you want to update after installation.

You can configure some parameters at setup by setting default values in either the DOS install.cfg or Windows* setup.ini file. For information on install.cfg, see “Modifying the Install.cfg File” on page 39. For information on setup.ini, see “Modifying the Setup.ini File” on page 24. You can adjust all parameters after setup by editing the workstation’s net.cfg file.

You can log client events to find what modules and parameters a client loads and what errors occur. You can turn on logging in two ways:

- Enter “ENABLE LOGGING” at a DOS prompt
- Load nios.exe from the startnet.bat file with the /L option

The client creates a nios.log file in the client working directory. You can modify the name of the log and set a maximum log size by specifying values for the Log File and Log File Size parameters in net.cfg.

There are two ways to locate the parameter you need:

Parameters by Type

Desktop SNMP

Host MIB

Link Support

Named Pipes

NetBIOS

NetWare DOS Requester

NetWare DOS TSA

NIOS

NWIP

Protocol IPX

Protocol TCPIP

Transport Provider IPX

Transport Provider UDP

Parameters in Alphabetical Order

Parameter	Default Value	Valid Values	Brief Description	Net.cfg Section
Alert Beep	on	on, off	Sounds an alert each time the client displays a character mode status message.	NIOS
ARP_AGING_ TIMEOUT	300	1 to 7200 seconds	Specifies the time an entry is kept in the ARP cache.	Protocol TCPIP
ARP_CACHE_MAX	64	8 to 256	Specifies the maximum number of ARP cache entries.	Protocol TCPIP
ARP_TIMEOUT	5	1 to 120 seconds	Specifies the time TCP/IP waits for an ARP request.	Protocol TCPIP
Auto Reconnect Level	2	0 to 4	Specifies the services the client performs when restoring a computer's connection to the network.	NetWare® DOS Requester™
Autoretries	0	0 to 10	Specifies the number of times NetWare/IP™ retries a DSS request without receiving a response.	NWIP
Autoretry Secs	10	5 to 60 seconds	Specifies the time between retries of DSS requests.	NWIP

Parameter	Default Value	Valid Values	Brief Description	Net.cfg Section
Bind	none	*driver name*	Binds an ODI™ LAN driver to the TCP/IP stack. Use this parameter for compatibility with LAN Workplace. Use Net Bind if you do not need LAN Workplace support.	Protocol TCPIP
Cache Writes	on	on, off	Saves files to memory before saving them to the network.	NetWare DOS Requester
Checksum	1	0 to 3	Validates NCP™ packets to provide data integrity.	NetWare DOS Requester
Close Behind Ticks	0	0 to 65535 ticks	Specifies the time the client waits after a file is closed before moving the file to a network drive. Increase the value to improve the speed of the client.	NetWare DOS Requester
Control Community	public	*string*	Specifies the name of the SNMP control community that can access the computer when the Enable Control Community parameter is set to “specified.”	Desktop SNMP

Parameter	Default Value	Valid Values	Brief Description	Net.cfg Section
Delay Writes	off	on, off	Specifies whether writes can be delayed after closing a program.	NetWare DOS Requester
Disk Buffers	1	1 to 30 KB	Determines the size for the TSA disk buffers.	NetWare DOS TSA
DOS Name	MSDOS	"*string*"	Sets the %OS variable to the name in quotation marks.	NetWare DOS Requester
Drives	C	1 letter per drive	Specifies the hard drives managed by the Target Service Agent for SMS™ software.	NetWare DOS TSA
Enable Control Community	off	any, specified, off	Specifies whether any control community, a specific control community, or no control community can access the computer.	Desktop SNMP
Enable Monitor Community	none	specified, any, off	Makes the computer a member of the read-only community, enabling it to do GET and GET NEXT operations for SNMP.	Desktop SNMP
Enable Trap Community	specified	specified, off	Specifies the name of the trap community, if any, that can access SNMP alerts sent by the computer.	Desktop SNMP

Parameter	Default Value	Valid Values	Brief Description	Net.cfg Section
End Of Job	on	on, off	Sends an End-of-Job to each connected server after a process is completed.	NetWare DOS Requester
Environment Pad	64	0 to 32768 bytes	Specifies the number of bytes to add to the DOS environment for DOS applications.	NetWare DOS Requester
File Cache Level	2	0 to 2	Specifies what file data the client stores in the computer's memory.	NetWare DOS Requester
First Network Drive	first available drive	A to Z	Specifies the first drive letter available for network drive mappings.	NetWare DOS Requester
Force First Network Drive	off	on, off	Specifies whether the SYS:LOGIN directory is mapped to the First Network Drive or the current network drive when logging out.	NetWare DOS Requester
Handle Net Errors	on	on, off	Specifies if the client handles network errors or calls interrupt 24, allowing other programs to handle network errors.	NetWare DOS Requester

Parameter	Default Value	Valid Values	Brief Description	Net.cfg Section
IF_ CONFIGURATION	static	static, BootP, DHCP, RARP	Specifies how the client obtains the configuration for a network interface.	Protocol TCPIP
Ignore Below 16Meg Memory Allocate Flag	off	on, off	Specifies whether nios.exe uses memory below 16 MB if requested to do so.	NIOS
INT64	on	on, off	Allows DOS applications to use interrupt 64h to access IPX™ services.	Protocol IPX
INT7a	on	on, off	Allows DOS applications to use interrupt 7Ah to access IPX services.	Protocol IPX
IP_ADDRESS	none	*IP address*, *string*	Defines the IP address for the network interface.	Protocol TCPIP
IP_BROADCAST	0.0.0.0	*IP address*, *string*	Defines the broadcast address of the network interface.	Protocol TCPIP
IP_NETMASK	none	*IP address*, *string*	Defines the network mask for the network interface.	Protocol TCPIP
IP_REASSEMBLY_ TIMEOUT	15	1 to 120	Specifies how long the TCP/IP stack waits for all pieces of a fragmented IP packet to arrive.	Protocol TCPIP

Parameter	Default Value	Valid Values	Brief Description	Net.cfg Section
IP_RIP	no	yes, no	Specifies whether Routing Information Protocol (RIP) in TCP/IP is enabled.	Protocol TCPIP
IP_ROUTER	none	*IP address*, *string*	Defines the IP address of the router for packets being sent to remote networks.	Protocol TCPIP
IP_RTSW_TRIGGER	3	1 to TCP_RXMIT_ LIMIT+1	Specifies the number of retransmits before trying another router. Also enables “dead router” detection.	Protocol TCPIP
IP_TTL	128	1 to 65535 hops	Specifies the time to live (TTL) value of an IP packet. This value should be twice the longest path an IP packet might travel.	Protocol TCPIP
IPX Diagnostics	on	on, off	Specifies whether IPX diagnostics functions are enabled.	Protocol IPX
IPX Retry Count	20	0 to 65535	Specifies the number of times the computer attempts to find a route to a destination.	Protocol IPX

Parameter	Default Value	Valid Values	Brief Description	Net.cfg Section
Large Internet Packets	on	on, off	Specifies whether the client uses LIP. “On” enables the client to negotiate the maximum packet size with the NetWare server.	NetWare DOS Requester
LIP Start Size	65535	512 to 65535 bytes	Determines the starting value for negotiating the Large Internet Packet size. Setting this value can shorten the initial negotiation time for packet size over slow links.	NetWare DOS Requester
Lock Delay	1	1 to 65535 ticks	Specifies how long the client waits after a share.exe failure, before trying to lock a file.	NetWare DOS Requester
Lock Retries	5	1 to 65535	Specifies the number of times the client attempts to lock a network file after receiving a share.exe failure.	NetWare DOS Requester
Log File	NIOS.LOG	*path*/*filename*	Specifies the path and filename of the the client log file. Load nois.exe with a /L to enable logging. The default is nois.log in the client working directory.	NIOS

Parameter	Default Value	Valid Values	Brief Description	Net.cfg Section
Log File Size	65535	1 to1048576 bytes	Sets the maximum size for the log file. Load nois.exe with a /L to enable logging.	NIOS
Long Machine Type	IBM_PC	*1- to 6-character string*	Sets the %MACHINE variable to the name specified in quotes.	NetWare DOS Requester
Max Buffer Size	4736	100 to 24682	Specifies the maximum packet size.	Link Support
Max Cache Size	0	0 to unlimited KB	Specifies the largest possible amount of memory that the client can use for caching.	NetWare DOS Requester
Max Cur Dir Length	64	64 to 255 characters	Specifies the maximum length of the DOS prompt. Some applications do not function correctly if this value is set to greater than 64.	NetWare DOS Requester
Mem Pool Size	128	0 to unlimited KB	Specifies the amount of memory the client reserves for special use. The client uses the memory pool if a program requests memory and no extended memory is available or if an NLM program loads from Windows.	NIOS

Parameter	Default Value	Valid Values	Brief Description	Net.cfg Section
Message Level	1	0 to 4	Specifies how load-time messages are displayed.	NetWare DOS Requester
Minimum Time To Net	0 ms	0 to 65535 ms	Overrides the time-to-net value defined by the local router during connection. Used over slow links.	NetWare DOS Requester
Modem	none	*string*	Specifies information about a modem attached to the computer.	Host MIB
Monitor Community	public	*string*	Specifies the name of the group an SNMP management console must belong to in order to perform inventory queries on the computer.	Desktop SNMP
Name Cache Level	2	0 to 2	Specifies the type of name caching used by the client. 0 is disabled, 1 is enabled, and 2 is enabled with persistence (the best performance).	NetWare DOS Requester
Name Context	Root	*string*	Sets the computer's initial context in the Directory tree.	NetWare DOS Requester

Parameter	Default Value	Valid Values	Brief Description	Net.cfg Section
NCP Max Timeout	30	0 to 65535 seconds	Specifies the maximum amount of time the client waits for a network connection.	NetWare DOS Requester
Nearest NWIP Server	none	*string*	Specifies the nearest NetWare/IP server.	NWIP
Net Bind	IPX: autobind, TCP/IP: none	*strings*	Specifies the logical boards IPX binds to or the network interface TCP/IP binds to.	Protocol IPX, Protocol TCPIP
NetBIOS Abort Timeout	540	0 to unlimited ticks	Specifies the time NetBIOS waits to receive a response before terminating a session. Increase this value for NetBIOS connections over slow lines.	NetBIOS
NetBIOS Broadcast Count	2 or 4	2 to 65535	Specifies the number of queries NetBIOS broadcasts for the name an application uses.	NetBIOS
NetBIOS Broadcast Delay	36 or 18	16 to 65535 ticks	Specifies the time NetBIOS waits between query or claim broadcasts. Increase the value if the packet-loss rate is high.	NetBIOS

Parameter	Default Value	Valid Values	Brief Description	Net.cfg Section
NetBIOS Commands	12	4 to 150	Specifies the maximum number of NetBIOS commands the NetBIOS driver can store in the computer's memory.	NetBIOS
NetBIOS Internet	off	on, off	Specifies whether name-claim packets are transmitted to and from computers on the internetwork or the local network.	NetBIOS
NetBIOS Listen Timeout	108	1 to 65535 ticks	Specifies the time NetBIOS waits without receiving a packet before it requests a keep-alive packet.	NetBIOS
NetBIOS Receive Buffers	6	4 to 20	Specifies the number of IPX receive buffers NetBIOS uses. NetBIOS automatically increases the value when needed.	NetBIOS
NetBIOS Retry Count	20 or 10	4 to 20	Specifies how many requests NetBIOS transmits for connection or how many failed communications it retransmits.	NetBIOS

Parameter	Default Value	Valid Values	Brief Description	Net.cfg Section
NetBIOS Retry Delay	10	10 to 65535 ticks	Specifies the time NetBIOS waits between transmissions while establishing a connection or resending a data packet.	NetBIOS
NetBIOS Send Buffers	6	4 to 20	Specifies the number of IPX send buffers that NetBIOS uses.	NetBIOS
NetBIOS Session	32	4 to 250	Specifies the number of sessions NetBIOS can support at a time.	NetBIOS
NetBIOS Verify Timeout	54	4 to 65535 ticks	Specifies the time between keep-alive packets.	NetBIOS
Net Status Busy Timeout	20 seconds	1 to 600 seconds	Specifies how long the client waits after receiving a busy signal before attempting to auto-reconnect.	NetWare DOS Requester
Net Status Timeout	30 seconds	1 to 600 seconds	Specifies how long the client waits without receiving a response before attempting to auto-reconnect.	NetWare DOS Requester

Parameter	Default Value	Valid Values	Brief Description	Net.cfg Section
NetWare Protocol	NDS BIND	NDS, BIND (any order)	Allows you to list the order in which the NetWare Name Service™ modules are accessed during authentication to the network.	NetWare DOS Requester
Network Printers	3	0 to 9	Sets the number of parallel ports the NetWare DOS Requester can capture.	NetWare DOS Requester
NP Max Comm Buffers	6	4 to 40	Specifies the number of communication buffers that the extender can use to transmit and receive data from the Named Pipes server.	Named Pipes
NP Max Machine Names	10	4 to 50	Specifies the number of Named Pipes servers that the DOSNP software maintains in a local name table.	Named Pipes
NP Max Open Named Pipes	4	4 to 128	Specifies the maximum number of Named Pipes the computer can have open.	Named Pipes
NP Max Sessions	10	4 to 150	Specifies the number of Named Pipes servers the extender can communicate with in default mode.	Named Pipes

Parameter	Default Value	Valid Values	Brief Description	Net.cfg Section
NSQ Broadcast	on	on, off	Makes the NetWare/IP client find the nearest NetWare server by broadcasting the request on the local network.	NWIP
NWIP Domain Name	none	*string*	Specifies the NetWare/IP domain that is configured for an area.	NWIP
NWIP1_1 Compatibility	off	on, off	Used if your servers are running the NetWare/IP 1.1 pre-patch.	NWIP
Password	none	*string*	Specifies the computer's default password for Storage Management Services™ (SMS™). If a password is listed, sbackup.nlm prompts the supervisor for a password before it backs up the computer	NetWare DOS TSA
Path TCP_CFG	none	string	Specifies the location and name of the directory that contains required TCP/IP database files.	Protocol TCPIP

Parameter	Default Value	Valid Values	Brief Description	Net.cfg Section
PB Buffers	3	0 to 10	Specifies whether Packet Burst™ is enabled. 0 disables Packet Burst. 1 through 10 enable Packet Burst, reducing network traffic and increasing the speed of the client.	NetWare DOS Requester
Pburst Read Window Size	24 or 255	3 to 255 packets	Specifies the maximum number of packets per Read Burst. The read window size changes dynamically depending on network conditions.	NetWare DOS Requester
Pburst Write Window Size	10 or 255	3 to 255 packets	Specifies the maximum number of packets per Write Burst. The write window size changes dynamically depending on network conditions.	NetWare DOS Requester
Polled Broadcast Message Buffer	0	0-100	Specifies the number of broadcast messages saved on the client when Broadcast Message Mode is polled.	NetWare DOS Requester

Parameter	Default Value	Valid Values	Brief Description	Net.cfg Section
Pre-Allocate VGNMA Memory	off	on, off	Specifies whether conventional memory is allocated for VGNMA operations.	Protocol IPX
Preferred DSS	none	*string*	Specifies up to five domain SAP/RIP servers that you consider preferred.	NWIP
Preferred Server	none	string	Specifies the NetWare server that the client attaches to at load time.	NetWare DOS Requester
Preferred Tree	none	string	Specifies the Directory tree that the client connects to at load time.	NetWare DOS Requester
Primary	automatic	string	Specifies the logical board that IPX uses as the primary board.	Protocol IPX
Print Header	64	0 to 1024 bytes	Specifies the size of the buffer that holds the information used to initialize the printer for each print job. Increase this value if you are using a complex print job, or are printing to a PostScript* printer.	NetWare DOS Requester

Parameter	Default Value	Valid Values	Brief Description	Net.cfg Section
Print Tail	16	0 to 1024 bytes	Sets the size of the buffer that holds the information used to reset the printer after a print job.	NetWare DOS Requester
Printer	none	"*string*"	Specifies information about a local printer. An SNMP management console can query the computer for this information.	Host MIB
Read Only Compatibility	off	on, off	Specifies whether a file marked Read Only can be opened with a Read/Write access call. Some applications require this parameter to be "On."	NetWare DOS Requester
Resolve Name Using Primary	on	on, off	Uses only the primary connection to do name resolves. If this value is turned off, the client will use all connections to attempt name resolves which takes more time.	NetWare DOS Requester
Route	none	net, host, *IP address*	Defines a static route to a network or a host.	Protocol TCPIP

Parameter	Default Value	Valid Values	Brief Description	Net.cfg Section
Search Dirs First	off	on, off	Specifies the order for file and directory listings on network drives when using the DIR command. "Off" displays files first, and then directories. "On" displays directories first, and then files.	NetWare DOS Requester
Search Mode	1	0 to 7	Specifies the method for finding a file if it is not in the current directory or path.	NetWare DOS Requester
Set Station Time	on	on, off	Synchronizes the client's time and date with the time and date on the NetWare server that the client attaches to first.	NetWare DOS Requester
Short Machine Type	IBM	"*1- to 4-character string*"	Specifies what overlay file is used when accessing older NetWare utilities.	NetWare DOS Requester
Show Dots	off	on, off	Specifies whether to display parent dots in list boxes directory navigation.	NetWare DOS Requester

Parameter	Default Value	Valid Values	Brief Description	Net.cfg Section
Shrink Path to Dots	off	on, off	Allows network search drives in the DOS PATH set variable to either be truncated to a dot or to be left with the full directory path.	NetWare DOS Requester
Signature Level	1	0 to 3	Determines the level of security support. Increasing this value increases security but decreases performance.	NetWare DOS Requester
snmpEnable-AuthenTrap	off	on, off	Sends an alert if someone without proper access tries to use SNMP to access the computer.	Desktop SNMP
SPX Abort Timeout	540	1 to 65535 ticks	Specifies how long the SPX protocol should wait without receiving any response before terminating the session.	Protocol IPX
SPX Connections	15	1 to 255	Specifies the number-of-connections value that is given to applications that query this information.	Protocol IPX

Parameter	Default Value	Valid Values	Brief Description	Net.cfg Section
SPX Listen Timeout	108	1 to 65535 ticks	Specifies how long the SPX protocol waits without receiving a packet before requesting a packet to confirm that the connection is still valid.	Protocol IPX
SPX Verify Timeout	54	1 to 65535 ticks	Specifies the time SPX waits before sending a packet to keep the session active.	Protocol IPX
SPX Watchdogs	on	on, off	Forces SPX to honor application requests for connection watchdogging.	Protocol IPX
Stack Size	2048	512 to 4096 bytes	Specifies the stack size for TSA. Use only if the available memory on your computer is limited or you receive a “Stack Overflow” message.	NetWare DOS TSA
SWDirectory-Search	none	*string*	Specifies specific directories that the Host Resources MIB searches for program files.	Host MIB
SWDirectorySearch-Depth	1	0 to unlimited	Specifies the number of subdirectories tree Host Resources MIB searches for program files.	Host MIB

Parameter	Default Value	Valid Values	Brief Description	Net.cfg Section
sysContact	none	*string*	Specifies the name of the network supervisor for a computer.	Desktop SNMP
sysLocation	none	*string*	Specifies the physical location of a computer.	Desktop SNMP
sysName	none	*string*	Specifies the username for a computer.	Desktop SNMP
Tapedrive	none	*string*	Specifies information about the tape drive attached to the computer.	Host MIB
TCP_CONNECT_ RETRY	5	1 to 256	Specifies how many times the client attempts to establish a TCP connection.	Protocol TCPIP
TCP_KEEPALIVE	yes	yes, no	Specifies whether to issue TCP “keepalive” packets.	Protocol TCPIP
TCP_KEEPALIVE_ INTERVAL	7200	1 to 14400 seconds	Specifies the time between “keepalive” packet transmissions if TCP/IP is issuing “keepalive” packets.	Protocol TCPIP
TCP_RCV_ WINDOWS	16384	1 to 65535 bytes	Specifies the maximum TCP receive window (a buffer).	Protocol TCPIP

Parameter	Default Value	Valid Values	Brief Description	Net.cfg Section
TCP_RELEASE_ WAIT_TIME	120	1 to 600	Specifies how long to wait for release of a TCP socket to ensure the remote TCP stack received the acknowledgment of its connection termination request.	Protocol TCPIP
TCP_RXMIT_LIMIT	12	1 to 24	Specifies the number of times the client retransmits a packet.	Protocol TCPIP
TCP_RXMIT_ MAXTIME	120000	TCP_RXMIT_ MIN+! to 240000	Specifies the maximum TCP packet retransmission interval in milliseconds.	Protocol TCPIP
TCP_RXMIT_ MINTIME	110	2 to TCP_RXMIT_ MAXTIME+1	Specifies the minimum TCP packet retransmission interval in milliseconds.	Protocol TCPIP
Trap Community	public	*string*	Specifies the community name used for SNMP traps.	Desktop SNMP
Trap Target	none	*IP address*, *IPX address*	Specifies the addresses that the SNMP manager sends SNMP traps to.	Transport Provider IPX, Transport Provider UDP

Parameter	Default Value	Valid Values	Brief Description	Net.cfg Section
True Commit	off	on, off	Specifies whether the client requires a message from the server confirming that a closed file has been written to the server's hard disk before removing file data from the computer's memory.	NetWare DOS Requester
TSA Server Name	none	*string*	Specifies the name of the server running qman.nlm that the computer connects to.	NetWare DOS TSA
UDP_CHECKSUM	yes	yes, no	Specifies whether to use UDP checksums.	Protocol TCPIP
Use Video BIOS	off	on, off	Specifies whether the client uses BIOS or Direct Video Memory calls. The BIOS method is slower than Direct Video Memory calls.	NIOS
Workstation Name	none	*string*	Identifies the computer's name for SMS.	NetWare DOS TSA

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