Invisible LAN Operating System

Getting Started

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Contents

Introduction to Invisible LAN

Welcome to Invisible LAN! The word *LAN*, or *Local Area Network*, refers to a system that allows computers to communicate with each other, so they can exchange data and share resources.

A LAN includes both hardware and software. The *hardware* is the collection of circuit boards, wires, and other components that physically connect the computers. The *software* is the collection of programs that instruct the computers how to communicate reliably and efficiently. The software also lets you monitor and control the operation of the network.

This manual gets you started with the Invisible LAN software. You will learn how to:

- Install the software on your hard disk

- Configure the software

- Start the software

- Establish access to disks and printers on the network

- Send and receive electronic mail

- Control the network from DOS

- Control the network from Windows

Once the Invisible LAN software is running, you can refer to the other manuals for additional information.

- The *Installation* manual describes all the options for installing and configuring the software, allowing you to tailor the system to your exact requirements.

- The *DOS User Manual* describes all the network features that are available from the DOS command line, or the DOS menu system.

- The *Windows User Manual* describes all the network features that are available from Windows.

Starting the Setup Program

To install the Invisible LAN software, you have to copy the program files onto your hard disk, configure the software, and prepare your system for network operation. All these tasks are performed easily with the Invisible LAN Setup program.

Invisible LAN includes two versions of the Setup program:

■ **QSETUP** is the Quick Setup program. It is designed to get your network up and running as quickly as possible. **QSETUP** installs a basic network configuration that is sufficient for many users.

■ **SETUP30** is the Regular Setup program. It gives you access to additional network functions and options. **SETUP30** lets you tailor the network configuration to meet your exact requirements.

This manual describes the **QSETUP** program. If you want to use the **SETUP30** program, refer to the *Installation Manual* for instructions. (If you are installing Invisible LAN for the first time, we suggest that you begin with **QSETUP**. You can always run **SETUP30** later if you need access to more advanced functions.)

To start the Quick Setup program, insert the Invisible LAN program diskette #1 in drive A:, and type the command

        A:QSETUP

If you are using a laptop computer with a black-and-white screen, you may find that the display is easier to read if you use the command

        A:QSETUP /B

In either case, you see the Quick Setup Welcome Screen, as shown in figure 1.

The Quick Setup program takes you through the installation step-by-step. All the screens are self-explanatory, and there is plenty of on-line help available. The last line of the screen always lists the keys you can use to operate the Quick Setup program.

To continue with the installatin, press **Enter**.

```
                                          Invisible LAN Quick Setup

  Welcome to Invisible LAN Quick Setup.

  This Quick Setup program makes it very easy to install a standard
  network configuration.  The options available in Quick Setup are
  sufficient for many users.  If you need additional network options,
  you can run the regular Setup program by typing "SETUP30" at the DOS
  prompt.




  • Press Enter to set up Invisible LAN.
  • Press Esc to exit from this program.

 CONTINUE Enter  EXIT Esc
```

Figure 1. Quick Setup Welcome Screen

Copying Files to the Hard Disk

The first thing you have to do is copy the Invisible LAN program files onto your hard disk. You use the Quick Setup program to create a directory on your hard disk and copy all of the program files into it.

(Note that the files on the Invisible LAN program diskettes are stored in a compressed form. You cannot use the DOS COPY command to copy the files onto your hard disk. You must use **QSETUP** or **SETUP 30** to copy the files.)

Before beginning, make sure you have all your Invisible LAN program diskettes. In addition, make sure you have a copy of the program called SHARE.EXE, which is supplied as part of DOS. Your copy of SHARE.EXE can be on a floppy diskette, or on your hard disk.

The Quick Setup program asks you where to put the files on your hard disk, as shown in figure 2. By default, the files are copied to the directory C:\NET30. You can type over this directory name if you wish. For example, if you want to install the network software on drive D:, you could change the destination directory to D:\NET30.

When the directory name is correct, press **F9** to begin the copy process. The Quick Setup program prompts you when it is necessary to change diskettes.

Finally, the Quick Setup program needs to make a copy of SHARE.EXE. If Quick Setup can find SHARE.EXE by itself, then it automatically copies the file without asking for any input from you. If Quick Setup can't find SHARE.EXE by itself, then it asks you for the location of SHARE.EXE, as shown in figure 3. You need to type the name of the disk directory where SHARE.EXE is located, and then press **F9**. The Quick Setup program copies SHARE.EXE into the same directory as the Invisible LAN program files.

```
                                          Invisible LAN Quick Setup

              COPY FILES TO HARD DISK

     Invisible LAN will be installed on your hard
     disk in the directory shown below.  You can
     accept the default directory name C:\NET30, or
     you can type in a different directory name.

     C:\NET30

     • Press F9 to begin copying files.
     • Press F1 for help.
     • Press Esc to exit from this program.


  Type the directory path where you want to install the network software
  HELP F1  DONE F9  CANCEL Esc  EDIT → ←  Ins Del Home End
```

Figure 2. Copying Files to the Hard Disk

```
                                          Invisible LAN Quick Setup

              COPY SHARE.EXE

     Type the name of directory where SHARE.EXE is
     located.  (It is normally located in the same
     directory as your DOS files.)

     C:\

     • Press F9 to begin copying SHARE.EXE.
     • Press F1 for help.
     • Press Esc to exit from this program.


  Type the directory path where SHARE.EXE is located (SHARE is part of DOS)
  HELP F1  DONE F9  CANCEL Esc  EDIT → ←  Ins Del Home End
```

Figure 3. Copying the SHARE.EXE Program

Configuring the Software

The next step is to configure the Invisible LAN software. The Quick Setup program displays the Network Configuration screen shown in figure 4.

You configure the software by entering information on this screen. As you complete each item, you press **Enter** or **Tab** to proceed to the next item. If you make a mistake, you can use the **up arrow** and **down arrow** keys to highlight the item you want to correct, and then enter your correction.

Fill in the following information:

■ **User Name**. Every user on the network must have a name. Type the name that you want to use, and then press **Enter** to continue.

■ **Network Hardware Type**. Use **F5** or **F6** to select the type of network hardware you have installed in your computer. If you need help making the correct selection, press **F1**. If you need additional help, refer to the text file called HARDWARE.TXT for an extensive description of the supported hardware types. When the hardware type is correct, press **Enter** to continue.

■ **Install File Server**. The *file server* lets other network users access your disks and printers. Type **Y** if you want to install the file server software; type **N** if you don't. If you don't install the file server, then other network users cannot access your disks and printers. Press **Enter** to continue.

■ **Network Printer #1**. If you have installed the server, you can optionally make one or two of your printers available to other network users. Press **F5** or **F6** to select the first printer that you want to share with other network users. If you select **NONE**, then other network users cannot use your printer. Press **Enter** to continue.

■ **Network Printer #2**. Press **F5** or **F6** to select the second printer that you want to share with other network users, then press **Enter** to continue.

■ **Use Shadow RAM for Network**. *Shadow RAM* (also called *upper memory* or *high DOS memory*) is memory that is located between 640K and 1M. This is outside of the conventional DOS memory space. If you have a memory manager that provides shadow RAM, you can instruct Invisible LAN to load itself into shadow RAM by typing **Y**. If you don't want Invisible LAN to use shadow RAM, type **N**. (Using shadow RAM frees up memory for DOS applications. If you don't already have a memory manager, you can use the Invisible RAM memory managers that are included with Invisible LAN; refer to the *Installation Manual* for details.)

When you have finished entering your network configuration, press F9 to save your configuration to disk.

```
                    NETWORK CONFIGURATION

    Use this panel to configure Invisible LAN.  When you finish
    entering your configuration, press F9 to save it to disk.

    User Name  . . . . . . . . . . . . .  MIKE
    Network Hardware Type (F5/F6)  . . .  ETHERNET_2000
    Install File Server (Y/N)  . . . . .  Y
    Network Printer #1 (F5/F6) . . . . .  LPT1
    Network Printer #2 (F5/F6) . . . . .  NONE
    Use Shadow RAM for Network (Y/N) . .  Y

    • Press Enter, ↑, ↓, or Tab to switch fields.
    • Press F9 to save the configuration to disk.
    • Press F1 for help.
    • Press Esc to exit from this program.
```

```
Type the name of your network station
HELP F1   DONE F9   CANCEL Esc   SELECT Enter ↑ ↓ Tab   EDIT → ←  Ins Del Home End
```

Figure 4. Network Configuration Screen

Exiting from Setup

When you have completed the network configuration, the Quick Setup program displays the Exit Screen shown in figure 5.

Press **Enter** to exit from the Quick Setup program and immediately start the network software.

If you want to exit from the Quick Setup program without starting the network, press **Esc**. If you do this, you will have to type **NET30** at the DOS prompt to start the network software.

You may wish to change your DOS PATH to include the directory where the Invisible LAN program files are located.

```
You have completed Invisible LAN Quick Setup.

To start the network, type "NET30" at the DOS prompt.  Then, use the
MAP command or the MENU command to establish network connections.
Refer to the Invisible LAN Getting Started manual for descriptions
and examples of the NET30, MAP, and MENU commands.

You may want to create a batch file that uses NET30 to start the
network and then uses MAP to establish network connections.  You may
also want to add the Invisible LAN directory to your DOS PATH.

If you use Microsoft Windows, you need to install the Windows network
drivers.  To do this:  (a) start Windows;  (b) select Run from the
Program Manager's File menu;  and (c) run the program QSETUPW.

• Press Enter to start the network now.
• Press Esc to exit from this program.
```

CONTINUE Enter   EXIT Esc

Figure 5. Quick Setup Exit Screen

Starting Invisible LAN

To start Invisible LAN, type

    NET30

The **NET30** program reads your network configuration from disk and auto-matically loads the appropriate programs.

Mappings

You now have the network running, but in order to do any useful work you must establish mappings. *Mappings* are connections between your computer and the file server, that give you access to the server's disks and printers.

Mappings, like most other functions of Invisible LAN, can be performed in three different ways: from the DOS command line, from the DOS menu system, and from Windows. This section describes how to establish mappings from the DOS command line. Later sections will describe the other two methods.

At the DOS command line, you use the **MAP** command to control your mappings.

Network Disks

To use a server's disk, type

> **MAP**   *d:*   **** *server* **** *d:* ****

Replace the first *d:* with the drive letter you want to use when referring to the server's disk. Replace *server* with the name of the server computer. Replace the second *d:* with the server's drive letter.

Example — Suppose that the server is named MIKE, and suppose that you want to use drive letter D: to refer to the server's C: drive. You would type

> **MAP   D: \\MIKE\C:**

Now, your drive D: is the server's C: drive. Any time you refer to drive D:, you will access drive C: on the server. For example:

■ If you type the command **DIR D:**, you see a directory of the server's C: drive.

■ If you type the command **COPY C:MEMO.TXT D:MEMO.TXT**, the file MEMO.TXT is copied from your own hard disk to the server's hard disk.

■ If you type the command **TYPE D:NOTE.DOC**, the file NOTE.DOC is read from the server's hard disk and displayed on your screen.

In each case, you access the server's disk as if it was an additional disk attached to your own computer. Any DOS command or application program works the same way on drive D: as it does on any other drive.

Network Printers

To use a server's printer, type

> **MAP   LPT*x*   \\ *server* \ *n***

Replace **LPT*x*** with the name you want to use when referring to the server's printer: LPT1, LPT2, or LPT3. Replace *server* with the name of the server computer. Replace *n* with the number of the printer: 1 or 2.

Example — Suppose that the server is named VINCENT, and suppose that VINCENT is configured to share printer COM1 as network printer #1. If you want to use LPT2 to refer to VINCENT's printer, you would type

> **MAP   LPT2   \\VINCENT\1**

Now, your printer LPT2 is the server's printer #1. Any file you print on LPT2 is sent across the network and printed on VINCENT's printer COM1. For example:

■ If you type the command **COPY MEMO.TXT LPT2**, the file MEMO.TXT is sent across the network and printed on the server's printer.

■ If you type the command **DIR >LPT2**, the disk directory is printed on the server's printer.

In each case, you access the server's printer as if it were another printer attached to your own computer. Any DOS command or application program works the same way on LPT2 as it does on any other printer.

Disconnecting a Network Disk

After establishing a drive mapping, you can use the **MAP** command to terminate the mapping. To discontinue a drive mapping, type

> **MAP   *d:*   /D**

Example — Suppose you are using drive letter F: to refer to a server's disk. You can terminate the mapping with

> **MAP   F: /D**

Now, your drive letter F: no longer refers to the server's disk.

Mappings (Continued)

Disconnecting a Network Printer

After establishing a printer mapping, you can use the **MAP** command to terminate the mapping. To discontinue a printer mapping, type

> **MAP   LPT*x*   /D**

Example — Suppose you are using print device LPT3 to refer to a server's printer. You can terminate the mapping by with

> **MAP   LPT3   /D**

Now, your print device LPT3 no longer refers to the server's printer.

Displaying Mappings

You can display a list of all your drive and printer mappings by using the **MAP** command with no parameters. Simply type

> **MAP**

Note — If your computer is a server, and you are sharing one or two printers, the Setup program automatically establishes printer mappings so that your own printer output goes throught the network print spooler. Whenever you share a printer, it is important to establish a mapping to your own printer, so that your printer output does not conflict with other users' printer output.

Getting Help

The **MAP** command, like all other Invisible LAN commands, includes built-in help. To get help on any command, type the name of the command followed by "**?**" or "**/?**". For example, to get help on **MAP** you can type either of the following:

> **MAP   ?**

> **MAP   /?**

The DOS Menu System

We have seen how to establish mappings at the DOS command line. You can also establish mappings with the *network manager*, a menu-driven program for controlling the network.

To start the network manager, type the command

     MENU

If you are using a laptop computer with a black-and-white screen, you may find that the display is easier to read if you use the command

     MENU /B

In either case, you see the network manager Main Menu, as shown in figure 6.

The network manager is designed as a series of menus, so it is very easy to use. Most of the screens are self-explanatory, and there is plenty of on-line help available.

To select an item from the Main Menu, use the **up arrow** and **down arrow** keys to highlight the desired item, and then press **Enter**.

The second-to-last line on the screen shows a brief description of each item on the menu. If you want a more complete description or need additional help, press **F1**.

The last line on the screen lists the keys you can use to operate the network manager. If you need additional help using the keyboard, press **F1** twice.

As you can see from the Main Menu, the network manager performs a wide variety of functions. In this manual, we will only discuss the **Drive Mappings** and **Printer Mappings** items on the Main Menu. Refer to the *DOS User Manual* for information about the other menu items.

```
          NETWORK MANAGEMENT MAIN MENU

    Poll Network, Select Machine
    Drive Mappings
    Printer Mappings
    Automatic Print Stream Truncation
    Print Queue Contents
    Print Spooler Status
    User Definitions And Security
    Group Definitions And Security
    Shortname Definitions And Security
    Miscellaneous Security
    Server Usage Statistics
```

Lists all the network stations, and lets you select a station to manage
HELP F1 ACTIVATE Enter CANCEL Esc SELECT ↑ ↓ PgUp PgDn Home End A-Z

Figure 6. Network Manager Main Menu

Drive Mappings

To control your drive mappings, select **Drive Mappings** from the network manager Main Menu. The manager displays your current drive mappings, as shown in figure 7.

To change a drive mapping, use the **up arrow** and **down arrow** keys to highlight the mapping you want to change, and then press **Enter**. The Change Drive Mapping screen appears, as shown in figure 8.

Establishing a Drive Mapping

To establish a mapping, type the name of the server computer into the **Server's Name** field, and press **Enter**. Then type the server's drive into the **Drive or Shortname** field, and press **Enter**. Finally, press **Enter** or **F9** to establish the mapping.

(The **Server's Path** field is optional. You can use it to map into a subdirectory on the server's disk; refer to the *DOS User Manual* for details.)

Example — Suppose you want to access drive C: on the server named MIKE. You would type "MIKE" in the **Server's Name** field, and you would type "C:" in the **Drive or Shortname** field. Note that you must include the colon when typing the drive letter.

Discontinuing a Drive Mapping

To discontinue a drive mapping, type an asterisk in the **Server's Name** field, and then press **Enter** or **F9**.

```
Machine Name: MIKE                         Invisible LAN Network Manager

                           DRIVE MAPPINGS
   A: ==> Local
   B: ==> Local
   C: ==> Local
   D: ==> Local
   E: ==> Local
   F: ==> \\SERVER\C:\
   G: ==> \\SERVER\PROGRAMS
   H: ==> Local
   I: ==> Local
   J: ==> \\VINCENT\D:\DOS
   K: ==> Local
   L: ==> Local
   M: ==> Local
   N: ==> Local
   O: ==> Local
   P: ==> Local
 ▼ Q: ==> Local

 HELP F1  ACTIVATE Enter  CANCEL Esc  SELECT ↑ ↓ PgUp PgDn Home End A-Z
```
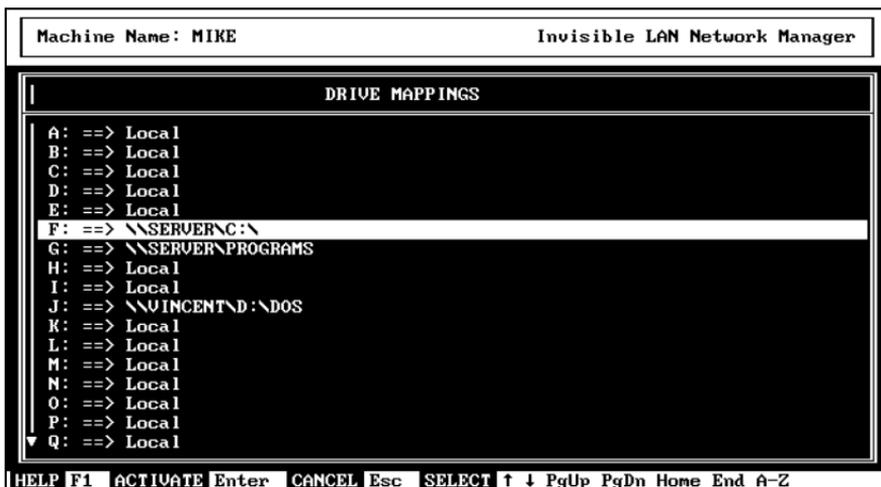
Figure 7. List of Current Drive Mappings

```
Machine Name: MIKE                         Invisible LAN Network Manager

                CHANGE MAPPING FOR DRIVE LETTER H:
  A
  B  For a network disk, fill in all three fields (Path is optional).
  C  For a local disk, type * in Server Name field.
  D  To browse, leave Server Name field blank.
  E
  F  Server's Name:                        (* for local)
  G
  H  Drive or Shortname:
  I
  J  Server's Path:
  K
  L: ==> Local
  M: ==> Local
  N: ==> Local
  O: ==> Local
  P: ==> Local
 ▼ Q: ==> Local
 Type the name of the server, or '*' for a local disk, or blank to browse
 HELP F1  DONE Enter F9  CANCEL Esc  SELECT ↑ ↓ Tab  EDIT → ← Ins Del Home End
```

Figure 8. Change Drive Mapping Screen

Browsing Network Drives

The previous section showed how to establish a drive mapping by typing in the server's name and drive letter. The network manager can also display a menu of available servers and drives. This lets you establish a drive mapping by making menu selections, without having to type anything at all.

To begin the process, first select **Drive Mappings** from the Main Menu, to display a list of your current drive mappings as in figure 7. Then select the mapping you want to change, and press **Enter** to bring up the Change Drive Mapping screen shown in figure 8.

Leave the Change Drive Mapping screen blank, and press **Enter** or **F9**. After two or three seconds, the network manager lists all the servers on the network, as shown in figure 9.

Use the **up arrow** and **down arrow** keys to highlight the server you want to use, and press **Enter**. The network manager lists all the drives and shortnames available on the selected server, as shown in figure 10. (Shortnames are documented in the *DOS User Manual*.)

Use the **up arrow** and **down arrow** keys to highlight the drive (or shortname) you want to use, and press **Enter**.

Your selections for server and drive (or shortname) are automatically transferred to the Change Drive Mapping screen. To establish the mapping, simply press **Enter** or **F9**.

```
┌─────────────────────────────────────────────────────────────────────┐
│ Machine Name: MIKE                          Invisible LAN Network Manager │
├─────────────────────────────────────────────────────────────────────┤
│ ┌───────────────────────────────────┐ ┌───────────────────────────┐ │
│ │                CHANGE MAPPING FOR DR│ │      SERVERS              │ │
│ │ A                                  │ │ MIKE                      │ │
│ │ B   For a network disk, fill in all thre│ │ SERVER          onal).    │ │
│ │ C   For a local disk, type * in Server N│ │ VINCENT                   │ │
│ │ D   To browse, leave Server Name field b│ │                           │ │
│ │ E                                  │ │                           │ │
│ │ F   Server's Name:    [        ]   │ │                           │ │
│ │ G                                  │ │                           │ │
│ │ H   Drive or Shortname: [      ]   │ │                           │ │
│ │ I                                  │ │                           │ │
│ │ J   Server's Path:    [        ]   │ │              [        ]    │ │
│ │ K                                  │ │                           │ │
│ │ L: ==> Local                       │ │                           │ │
│ │ M: ==> Local                       │ │                           │ │
│ │ N: ==> Local                       │ │                           │ │
│ │ O: ==> Local                       │ │                           │ │
│ │ P: ==> Local                       │ │                           │ │
│ │ Q: ==> Local                       │ │                           │ │
│ ├───────────────────────────────────┴─┴───────────────────────────┤ │
│ │HELP F1  ACTIVATE Enter  CANCEL Esc  SELECT ↑ ↓ PgUp PgDn Home End A-Z│ │
│ └─────────────────────────────────────────────────────────────────┘ │
└─────────────────────────────────────────────────────────────────────┘
```
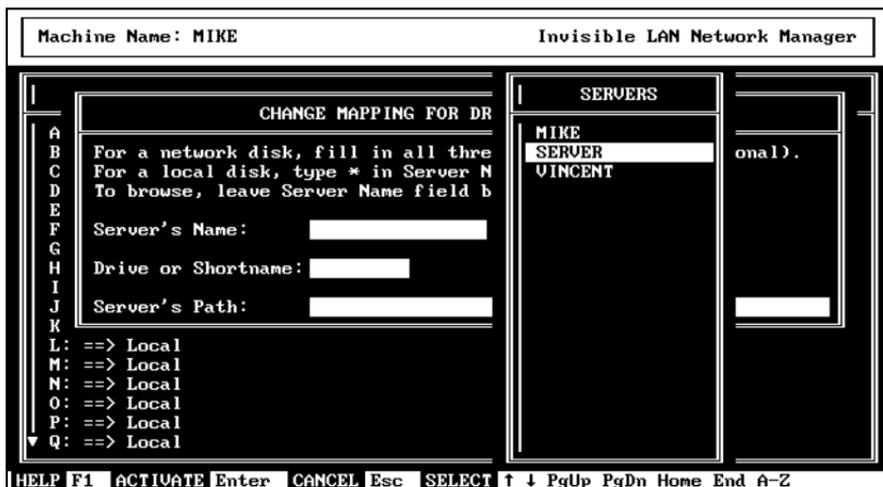
Figure 9. List of Servers for Establishing a Drive Mapping

```
┌─────────────────────────────────────────────────────────────────────┐
│ Machine Name: MIKE                          Invisible LAN Network Manager │
├─────────────────────────────────────────────────────────────────────┤
│ ┌───────────────────────────────────┐ ┌───────────────────────────┐ │
│ │                                    │ │ DRIVES AND SHORTNAMES     │ │
│ │                CHANGE MAPPING FOR DR│ │                           │ │
│ │ A                                  │ │ A:                        │ │
│ │ B   For a network disk, fill in all thre│ │ B:                        │ │
│ │ C   For a local disk, type * in Server N│ │ C:                        │ │
│ │ D   To browse, leave Server Name field b│ │ D:                        │ │
│ │ E                                  │ │ PROGRAMS                  │ │
│ │ F   Server's Name:    [SERVER  ]   │ │                           │ │
│ │ G                                  │ │                           │ │
│ │ H   Drive or Shortname: [      ]   │ │                           │ │
│ │ I                                  │ │                           │ │
│ │ J   Server's Path:    [        ]   │ │              [        ]    │ │
│ │ K                                  │ │                           │ │
│ │ L: ==> Local                       │ │                           │ │
│ │ M: ==> Local                       │ │                           │ │
│ │ N: ==> Local                       │ │                           │ │
│ │ O: ==> Local                       │ │                           │ │
│ │ P: ==> Local                       │ │                           │ │
│ │ Q: ==> Local                       │ │                           │ │
│ ├───────────────────────────────────┴─┴───────────────────────────┤ │
│ │HELP F1  ACTIVATE Enter  CANCEL Esc  SELECT ↑ ↓ PgUp PgDn Home End A-Z│ │
│ └─────────────────────────────────────────────────────────────────┘ │
└─────────────────────────────────────────────────────────────────────┘
```
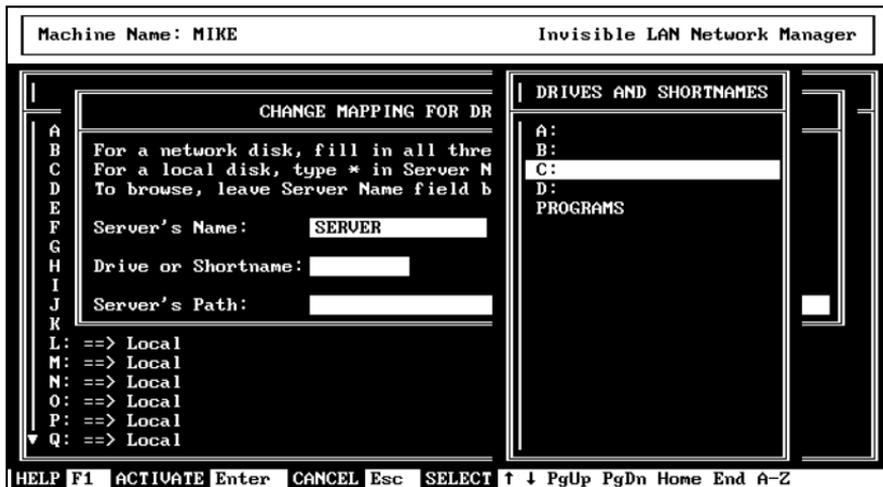
Figure 10. List of Drives and Shortnames for Establishing a Drive Mapping

Printer Mappings

To control your printer mappings, select **Printer Mappings** from the network manager Main Menu. The manager displays your current printer mappings, as shown in figure 11.

To change a printer mapping, use the **up arrow** and **down arrow** keys to highlight the mapping you want to change, and then press **Enter**. The Change Printer Mapping screen appears, as shown in figure 12.

Establishing a Printer Mapping

To establish a mapping, type the name of the server computer into the **Server's Name** field, and press **Enter**. Then type the server's printer number into the **Printer Number** field. (If you leave the **Printer Number** field blank, it defaults to printer #1.) Finally, press **Enter** or **F9** to establish the mapping.

Example — Suppose you want to access printer #2 on the server named VINCENT. You would type "VINCENT" in the **Server's Name** field, and you would type "2" in the **Printer Number** field.

Discontinuing a Printer Mapping

To discontinue a printer mapping, type an asterisk in the **Server's Name** field, and then press **Enter** or **F9**.
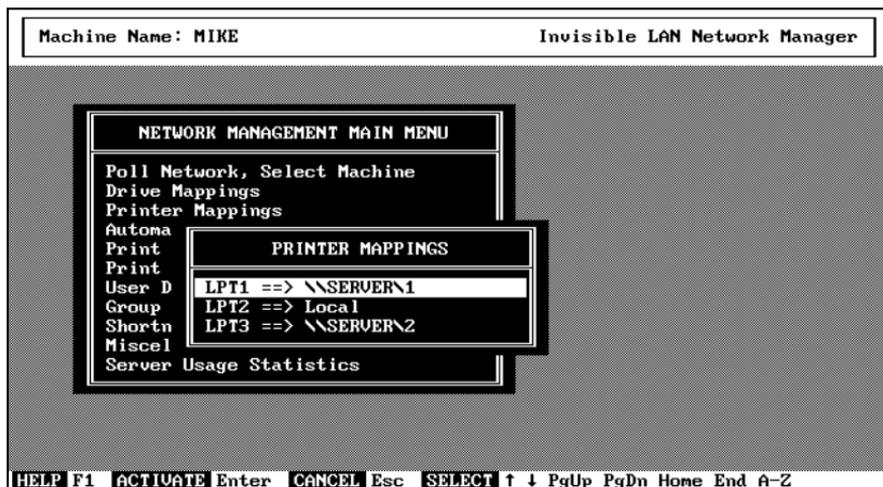
Figure 11. List of Current Printer Mappings
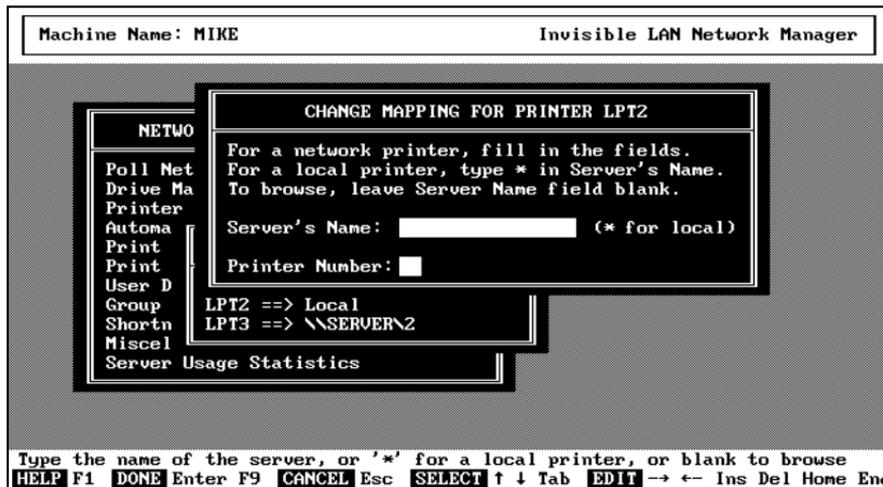
Figure 12. Change Printer Mapping Screen

Browsing Network Printers

The previous section showed how to establish a printer mapping by typing in the server's name and printer number. The network manager can also display a menu of available servers and printers. This lets you establish a printer mapping by making menu selections, without having to type anything at all.

To begin the process, first select **Printer Mappings** from the Main Menu, to display a list of your current printer mappings as in figure 11. Then select the mapping you want to change, and press **Enter** to bring up the Change Printer Mapping screen shown in figure 12.

Leave the Change Printer Mapping screen blank, and press **Enter** or **F9**. After two or three seconds, the network manager lists all the servers on the network that have shared printers, as shown in figure 13.

Use the **up arrow** and **down arrow** keys to highlight the server you want to use, and press **Enter**. The network manager lists all the printers available on the selected server, as shown in figure 14.

Use the **up arrow** and **down arrow** keys to highlight the printer you want to use, and press **Enter**.

Your selections for server and printer are automatically transferred to the Change Printer Mapping screen. To establish the mapping, simply press **Enter** or **F9**.
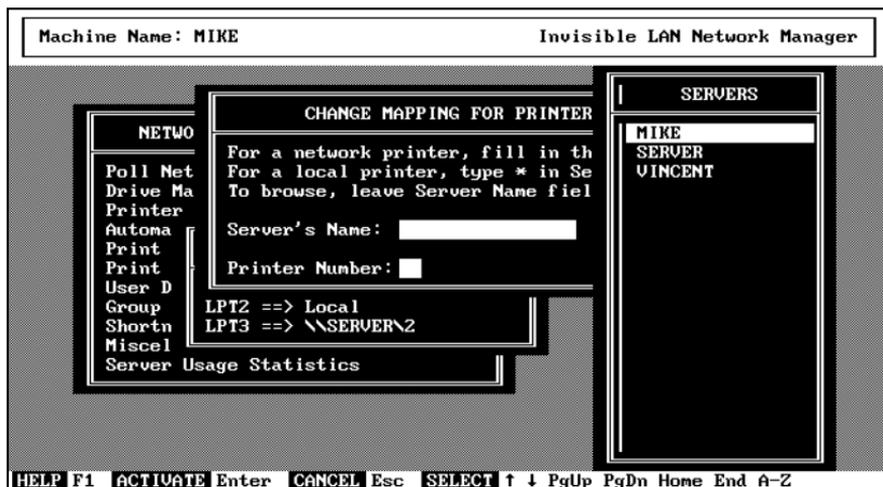
Figure 13. List of Servers for Establishing a Printer Mapping
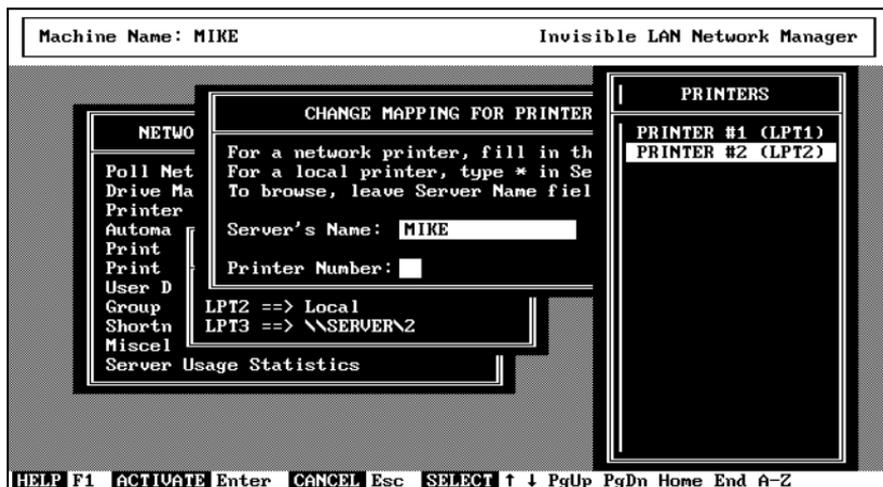
Figure 14. List of Printers for Establishing a Printer Mapping

Mail

You can use electronic mail to send short messages to other network users. The electronic mail program is a "pop-up" program that can come up onto the screen while you are running another program. However, you should note that the mail program can only "pop up" on top of text screens; it cannot "pop up" over graphics screens.

Sending Mail

To send a message, press **Ctrl-Alt-Backspace**. A four-line mail window appears at the top of the screen, as shown in figure 15.

In the first line of the window, type the network name of the computer to which you are sending the message. In the second line of the window, type the message. Your message is limited to one line. Then, press **F2** to send the message. Finally, press **Esc** to exit from the mail program.

Receiving Mail

When someone sends you mail, the mail program beeps the speaker three times, and the mail window appears at the top of the screen as shown in figure 16.

After reading the message, you can press **Esc** to exit from the mail program. Or, you can press **F6** if you want to send a reply. When you press **F6**, the second line of the window is cleared so you can type your reply. After typing the reply, press **F2** to send it, and then press **Esc** to exit from mail.

Figure 15. Sending Mail

Figure 16. Receiving Mail

The Windows Network Driver

To run Windows on the network, you have to install the Windows network driver. Invisible LAN includes a Windows program called **QSETUPW** to make the installation easy.

In addition to installing the Windows network driver, **QSETUPW** also installs an Invisible LAN group in Program Manager. The group contains several icons that you can use to access network functions from within Windows.

Installing Windows

Before installing the network driver, you need to install Windows. This should be done without Invisible LAN running. You use the Windows Setup program to install Windows, as described in the Microsoft Windows User's Guide.

While installing Windows, the Setup program may ask you what type of network you are using. You should select "No Network."

Installing the Windows Network Driver

After installing Windows, you are ready to install the Invisible LAN Windows network driver. The *network driver* is the program that links Windows and Invisible LAN together.

First, go to Program Manager, pull down the **File** menu, and select **Run**.

Next, type **QSETUPW** in the dialog box and press **Enter**.

A dialog box appears asking if you want to install the Windows network drivers for Invisible LAN. Choose **OK**.

Wait while **QSETUPW** performs the installation. This will take about 20 seconds.

Finally, when the instalation is complete, **QSETUPW** displays a dialog box informing you that you have to restart Windows in order for the changes to take effect. Choose **Yes** to restart Windows.

Note — These instructions do not apply to Windows For Workgroups. If you want to run Invisible LAN with Windows For Workgroups, refer to README.TXT or WORKGRP.TXT for special instructions.

Starting the Software

Now that the network driver is installed, you can run Windows on the network. You should always start Invisible LAN *before* starting Windows. For example, a typical start-up sequence looks like this:

        NET30
        WIN

The Windows Network Manager

The Windows Network Manager gives you complete control over the network from within Windows. It is a Windows application that uses graphics to ease the task of network management.

Starting the Network Manager

There are three ways to start the network manager:

■ Method 1. Double-click on the Invisible LAN Manager icon in Program Manager.

■ Method 2. Start the Windows Control Panel by double-clicking on the Control Panel icon in Program Manager. Then double-click on the network icon.

■ Method 3. Run the program NET30APP.EXE. This can be done either from Program Manager or from File Manager.

When you start the network manager, you see the main screen shown in figure 17.

As you can see from the main screen, the network manager performs a wide variety of functions. In this manual, we will only discuss drive mappings, printer mappings, and sending messages. Refer to the *Windows User Manual* for information on other functions.

Using the Network Manager

The network manager is a series of dialog boxes. They work much the same as any other dialog boxes in Windows, so if you are familiar with Windows you should have no trouble operating the network manager.

Help is available by choosing the **Help** button. When you choose **Help**, the Windows help system is activated, and you see help information on the particular dialog box you are using. Once the help system is active, you can choose **Index** or **Contents** to view a complete on-line reference manual for Invisible LAN.
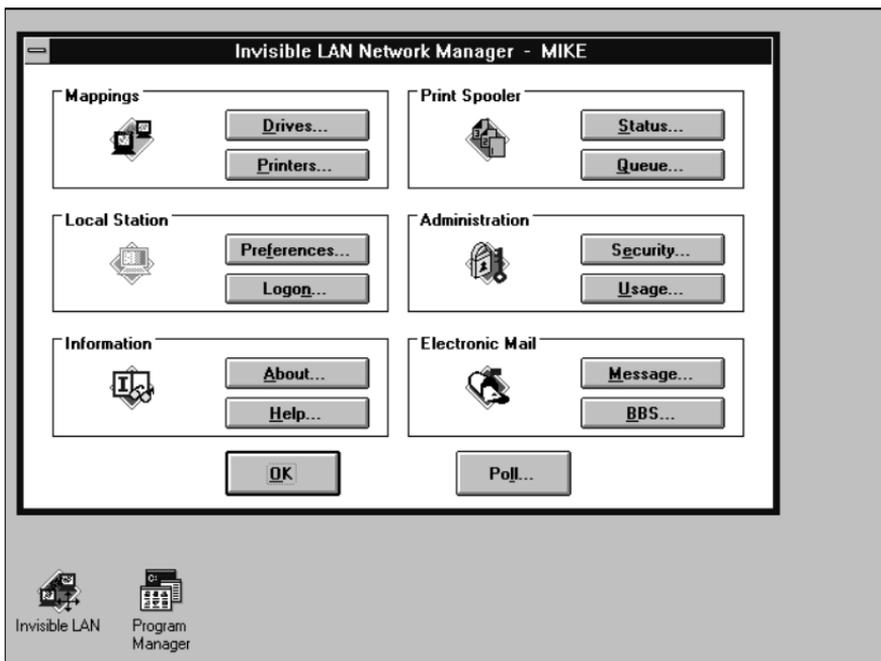
Figure 17. Windows Network Manager

Drive Mappings

A *drive mapping* is a logical connection between one of your drive letters (A: through Z:) and a server's disk. Any time you refer to the drive letter, you actually refer to the server's disk.

We previously described how to control your drive mappings from DOS, either at the command line or in the menu system. In this section we describe how to control your drive mappings in Windows.

Displaying Drive Mappings

Choose **Drives** on the main screen of the network manager to display your current drive mappings, as shown in figure 18. (You can also display your current drive mappings by double-clicking on the Drive Mappings icon in Program Manager.)

Discontinuing a Drive Mapping

To terminate one of your drive mappings, select a drive mapping from the displayed list, and then choose **Disconnect**.

Establishing a Drive Mapping

To create a drive mapping, first select a drive letter from the **Drive Letter** drop-down box. Next, type the network path into the **Network Path** text box. The network path must have the following form:

> *\\ server \ d: *

Replace *server* with the name of the server computer, and replace *d:* with the server's drive letter.

Finally, choose **Connect** to establish the mapping.

Example — Suppose that the server is named MIKE. You want to use drive letter D: to refer to the server's hard disk, which is drive C: on the server. You would first select "D:" from the **Drive Letter** drop-down list. Then you would type "\\MIKE\C:\" in the **Network Path** text box. Finally, you would choose **Connect**.

Now, your drive D: is the server's C: drive. Any time you refer to drive D:, you will access drive C: on the server. For example, if you start the Windows File Manager and log in to drive D:, you will see the directory tree of the server's C: drive. Any Windows application can access drive D: exactly as if it were an additional drive attached to your own computer.
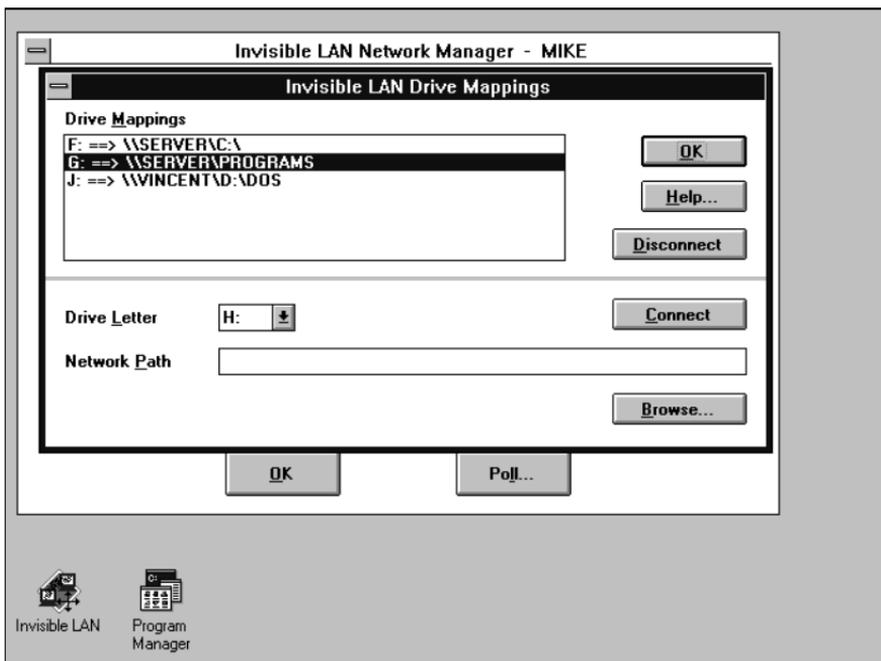
Figure 18. Drive Mapping Dialog Box

Browsing Network Drives

The previous section showed how to establish a drive mapping by typing in the server's name and drive letter. The network manager can also display a menu of available servers and drives. This lets you establish a drive mapping by making menu selections, without having to type anything at all.

To begin the process, first select **Drives** from the main screen of the network manager, to display the current drive mappings as shown in figure 18. (Alternatively, you can double-click on the Drive Mappings icon in Program Manager.)

Next, select a drive letter from the **Drive Letter** drop-down box.

Next, choose **Browse**. After two or three seconds, the network manager displays a list of all the servers on the network, as shown in figure 19.

Select a server from the list, and choose **Append**. Or, double-click on the server. The network manager displays a list of the drives and shortnames available on the selected server, as shown in figure 20. (Shortnames are described in the *Windows User Manual*.)

Select a drive (or shortname) from the list, and choose **Append**. Or, double-click on the drive (or shortname).

Next, choose **OK**. The server and drive (or shortname) that you selected is automatically transferred to the **Network Path** text box.

Finally, choose **Connect** to establish the mapping.
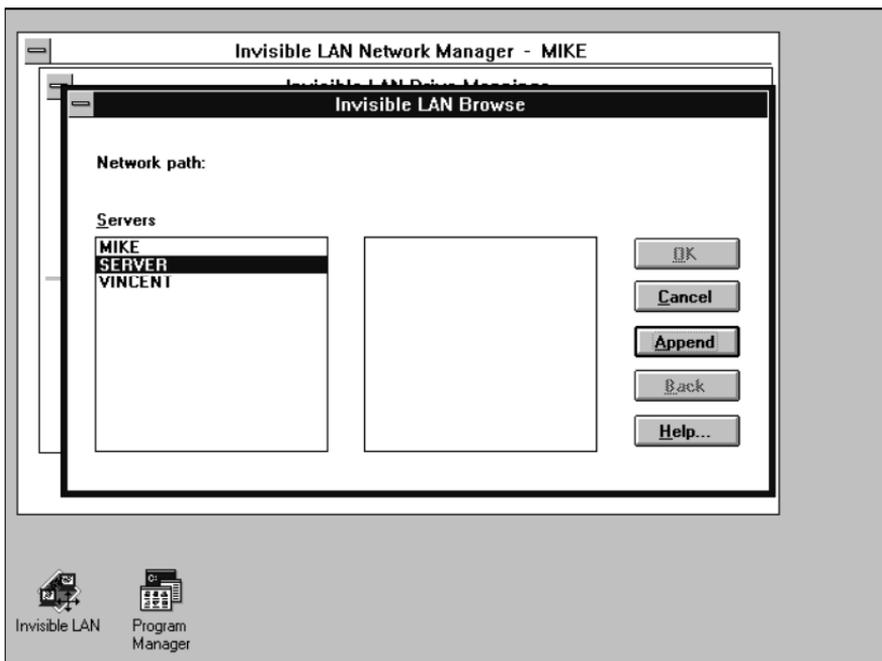
*Figure 19. List of Servers for Drive Mapping Browse*
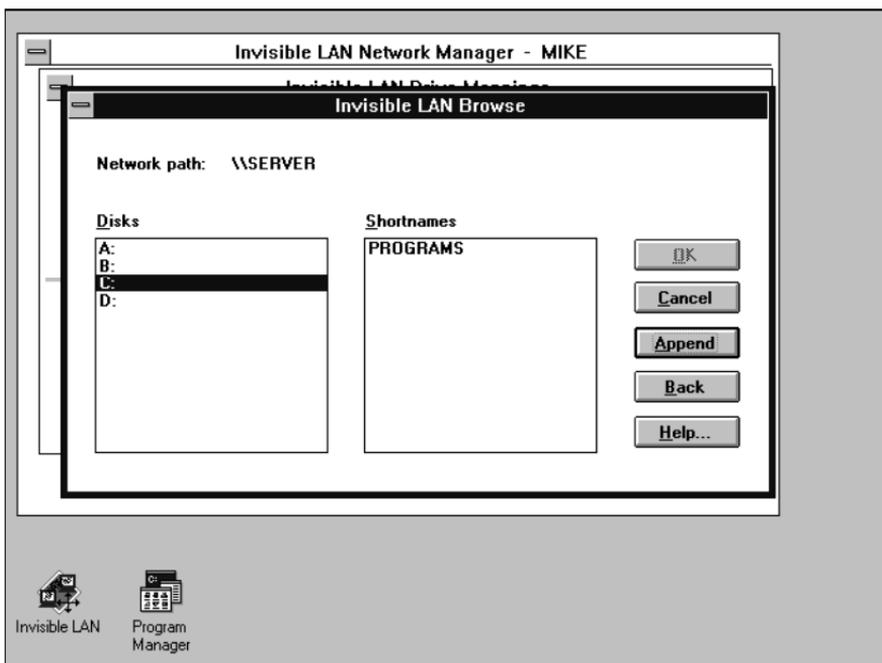
Figure 20. List of Drives and Shortnames for Drive Mapping Browse

Printer Mappings

A *printer mapping* is a logical connection between one of your print devices (LPT1, LPT2, or LPT3) and a server's printer. Any time you refer to the print device, you actually refer to the server's printer.

We previously described how to control your printer mappings from DOS, either at the command line or in the menu system. In this section we describe how to control your printer mappings in Windows.

Displaying Printer Mappings

Choose **Printers** on the main screen of the network manager to display your current printer mappings, as shown in figure 21. (You can also display your current printer mappings by double-clicking on the Printer Mappings icon in Program Manager.)

Discontinuing a Printer Mapping

To terminate one of your printer mappings, select a printer mapping from the displayed list, and then choose **Disconnect**.

Establishing a Printer Mapping

To create a printer mapping, first select a print device from the **Print Device** drop-down box. Next, type the network path into the **Network Path** text box. The network path must have the following form:

> *\\ server \ #*

Replace *server* with the name of the server computer, and replace *#* with the server's printer number.

Finally, choose **Connect** to establish the mapping.

Example — Suppose that the server is named VINCENT. You want to use print device LPT2 to refer to the server's printer #1. You would first select "LPT2" from the **Print Device** drop-down list. Then type "\\VINCENT\1" in the **Network Path** text box. Finally, you would choose **Connect**.

Now, your printer LPT2 is the server's printer. Any time you refer to printer LPT2, you will access printer #1 on the server. For example, if you use a word processor to print a document on printer LPT2, the document is sent across the network and printed on the server's printer. Any Windows application can access printer LPT2 exactly as if it were an additional printer attached to your own computer.
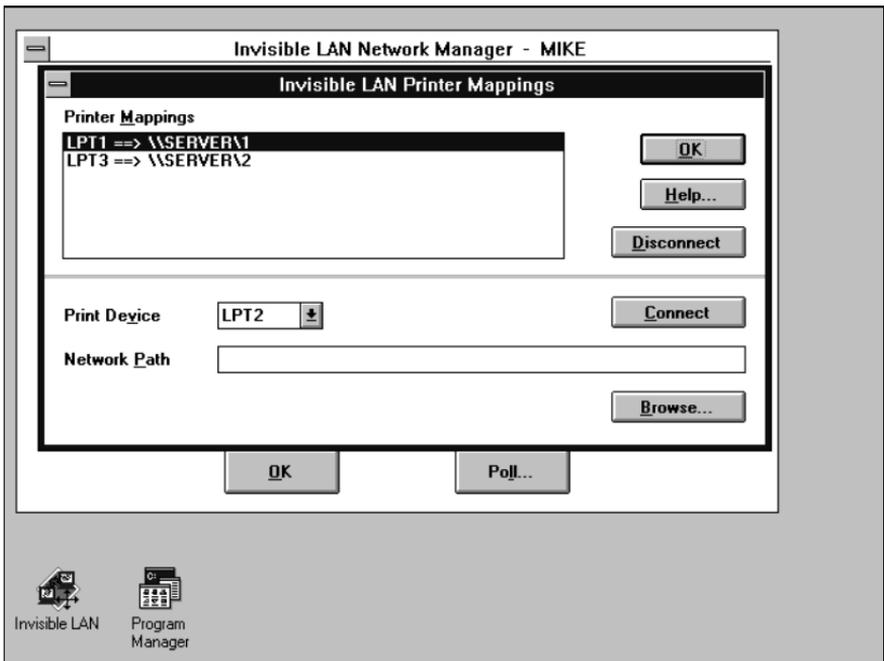
Figure 21. Printer Mapping Dialog Box

Note — With Windows, you must install a *printer driver* before you can use a print device. The printer driver that you install must correspond to the printer on which the printing will actually occur. In the above example, if VINCENT's printer is a PostScript printer, you would have to install the PostScript printer driver on print device LPT2.

Browsing Network Printers

The previous section showed how to establish a printer mapping by typing in the server's name and printer number. The network manager can also display a menu of available servers and printers. This lets you establish a printer mapping by making menu selections, without having to type anything at all.

To begin the process, first select **Printers** from the main screen of the network manager, to display the current printer mappings as shown in figure 21.

Next, select a print device from the **Print Device** drop-down box.

Next, choose **Browse**. After two or three seconds, the network manager displays a list of all the servers on the network that have shared printers, as shown in figure 22.

Select a server from the list, and choose **Append**. Or, double-click on the server. The network manager displays a list of the printers available on the selected server, as shown in figure 23.

Select a printer from the list, and choose **Append**. Or, double-click on the printer.

Next, choose **OK**. The server and printer that you selected is automatically transferred to the **Network Path** text box.

Finally, choose **Connect** to establish the mapping.
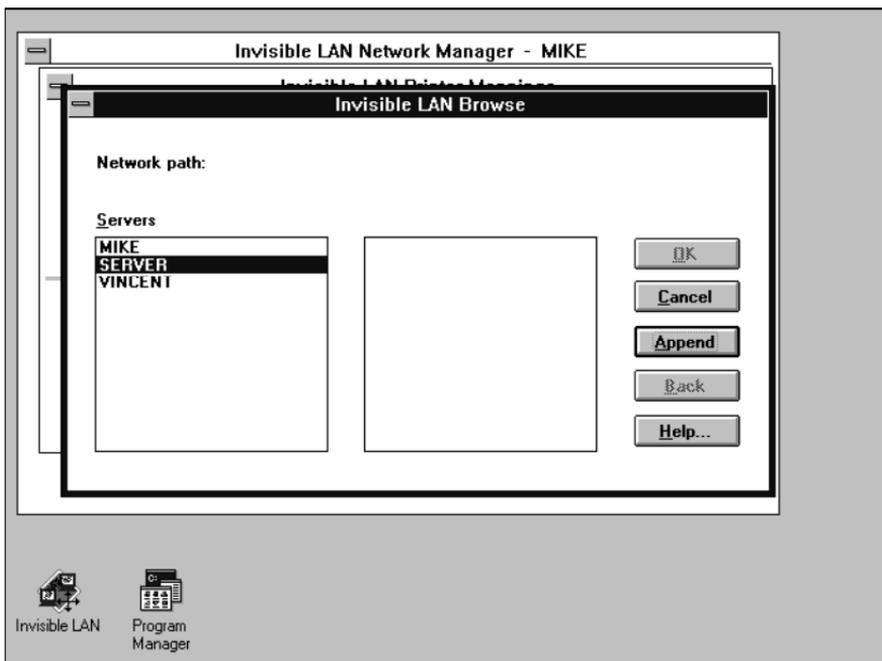
*Figure 22. List of Servers for Printer Mapping Browse*
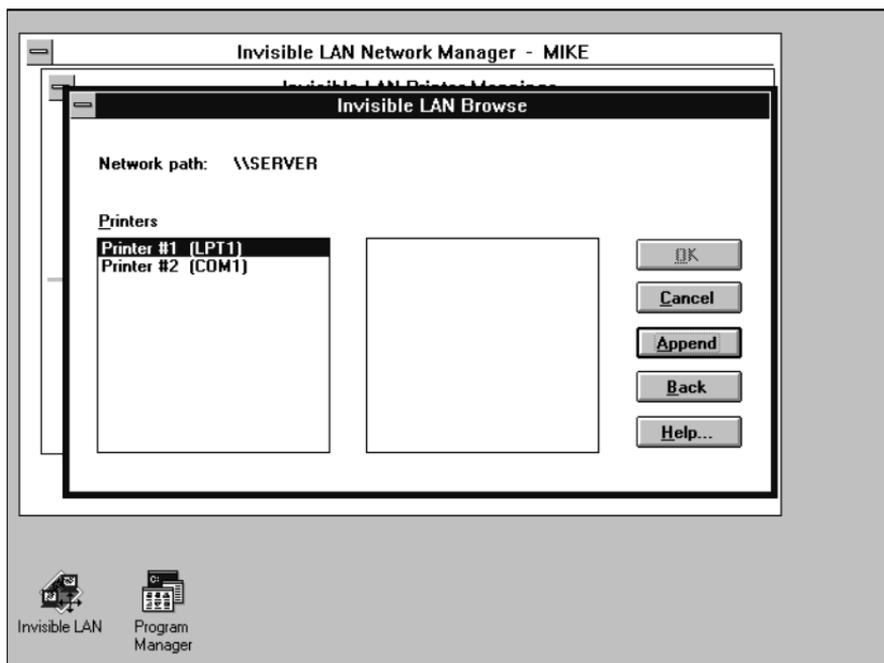
Figure 23. List of Printers for Printer Mapping Browse

Mail

You can use electronic mail to send short messages to other network users.

Sending Mail

To send a message, choose **Message** on the main screen of the network manager. The mail dialog box appears, as shown in figure 24.

In the first line of the dialog box, type the network name of the computer to which you are sending the message. In the second line of the dialog box, type the message. Your message is limited to one line. Then, choose **Send** to send the message. Finally, choose **Cancel** to exit from the mail dialog box.

Receiving Mail

When someone sends you mail, the mail dialog box appears on the screen as shown in figure 25.

After reading the message, you can choose **Cancel** to exit from the mail dialog box. Or, you can choose **Reply** if you want to send a reply. When you choose **Reply**, the second line of the dialog box is cleared so you can type your reply. After typing the reply, press **Send** to send it, and then press **Cancel** to exit from mail.
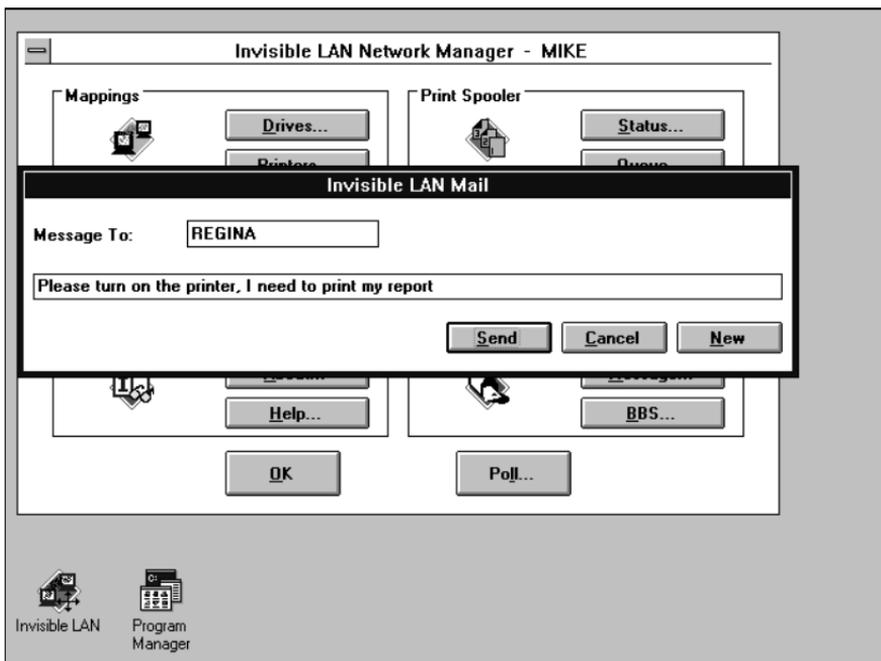
Figure 24. Sending a Message
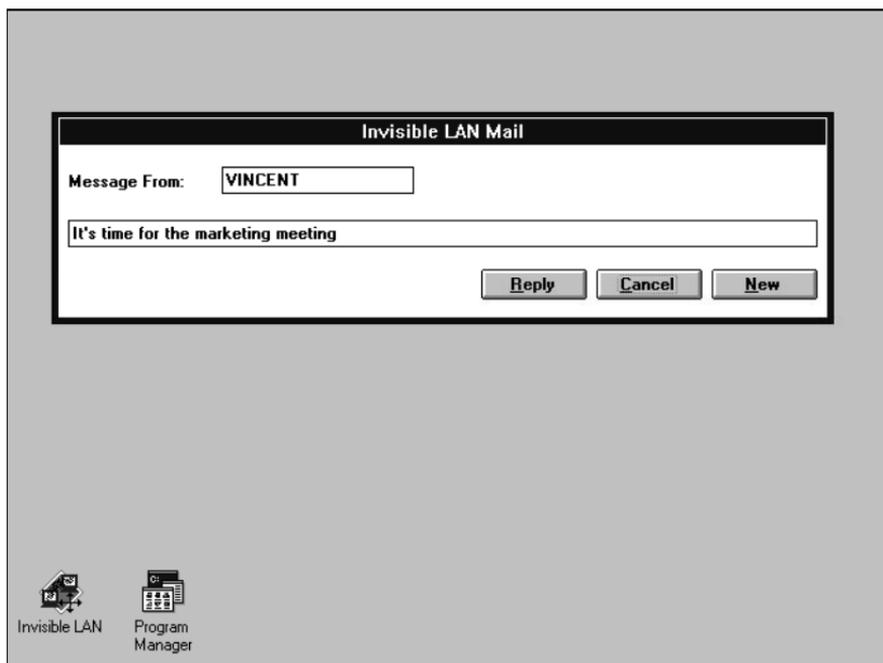
Figure 25. Receiving a Message

Virtual Machines

With Windows, you can have several DOS applications running simultaneously, in addition to having several Windows applications running. In this section, we briefly describe how Invisible LAN handles this situation. A more extensive discussion can be found in the *Windows User Manual*.

The behavior of Invisible LAN varies, depending on whether you run Windows in enhanced mode or standard mode. We therefore discuss the two modes separately.

Enhanced Mode

When you run Windows in 386 enhanced mode, each DOS program executes in a *virtual machine*. Each virtual machine acts like a separate computer. In addition, all the Windows applications execute together in a single virtual machine known as the *system virtual machine*.

Invisible LAN extends the virtual machine concept to create *virtual network stations*. Each virtual machine acts like a separate network station.

With Invisible LAN, each virtual machine has its own independent drive and printer mappings. You can change the mappings in one virtual machine without affecting any other virtual machine. Changing the mappings in a DOS virtual machine does not affect any other DOS virtual machine, nor does it affect any Windows applications. Changing the mappings in Windows affects all Windows applications, since they all run in a single virtual machine; however, it does not affect any DOS applications.

Whenever you start a new virtual machine, it "inherits" the mappings that existed when you first started Windows.

When two virtual machines try to access the same file, Invisible LAN enforces the standard file sharing rules, just as if two network stations were trying to access the same file. Additionally, each virtual machine has its own independent network print streams, so it is possible for several virtual machines to print to the same network printer at the same time.

When you send mail, you have to activate Windows and use the Windows Network Manager. You can't "pop up" the mail program within a DOS virtual machine by pressing **Ctrl-Alt-Backspace**. When you receive mail, Invisible LAN automatically activates Windows and displays the mail dialog box.

Standard Mode

When you run Windows in standard mode, there are no virtual machines. It is possible start several DOS applications, but they do not run in virtual machines.

In standard mode, all drive and printer mappings are "global." This means that any time you change a drive or printer mapping, it immediately affects all DOS applications and all Windows applications.

The network print streams are also global, so if two DOS applications try to use the same printer at the same time, their printer output will be mixed together.

When a DOS application is active, you can "pop up" the mail program by pressing **Ctrl-Alt-Backspace**. However, you can "pop up" the mail program in only one DOS application at a time. If a DOS application is active when you receive mail, the mail program will "pop up" within the DOS application. If a Windows application is active when you receive mail, Invisible LAN displays the mail dialog box.