Using LAN Inventory

Document Release LI.32

Table of Contents

Chapter 4 Set-up and Administration   49

Chapter 5 Collecting Inventory   83

Chapter 6 Conducting an Audit   108

Chapter 7 Reviewing Audit Results   113

NOTES

Chapter 1 Introduction

Welcome to LAN Inventory, a comprehensive inventory solution for managing your network.

LAN Inventory is a member of McAfee's family of intuitive network management support tools, a group of applications all designed to reduce the cost of network ownership.

About LAN Inventory

As a network manager, you can collect and maintain information about network hardware and software components quickly and easily by using LAN Inventory. Its capabilities focus on performing, recording and reporting the inventory of your network, including fileservers as well as both stand-alone and networked PCs and MACs.

Using LAN Inventory, you can access a vast amount of valuable network information—all without leaving your desk. LAN Inventory's console is a powerful tool that puts all the necessary inventory data and capabilities in a single location. You can track detailed vendor, warranty and service information on any network hardware or software component. Or use the flexible spreadsheet window to review equipment inventory data. you can even prevent users from changing their own workstation settings.

All of these effective management features result in far-reaching cost benefits. LAN Inventory allows you to reduce and control network management and maintenance costs and eliminate the costs related to carrying unnecessary or defective equipment on your network.

And now LAN Inventory conducts network audits at the NLM level, freeing-up your console while gathering network information from the inventory databases. With this new feature, you can continue managing your network from your console while the LAN Inventory NLM does all the work to give you up-to-date inventories.

NOTE: LAN Inventory fully integrates with BrightWorks, McAfee's network management solution. If you purchased BrightWorks, *Using LAN Inventory* is provided to describe the functionality of BrightWorks' Inventory capabilities**.**

Maintaining Network Inventory

The Problem

Effective network management requires recognizing and tracking each and every network component. When your network is initially installed, being aware of all of its components is simple; but as you add users and expand the network, monitoring its hardware and software becomes increasingly difficult.

Network configurations change constantly to accommodate new users and new applications. Existing applications are continuously upgraded, and memory capacities, ever-changing. As a result, maintaining a manual inventory of your network is a tedious, if not impossible, task.

Manually assessing the hardware and software components of a network requires an average of 30 minutes per workstation. A simple calculation shows that performing an inventory on a network of 10 workstations would require five hours. Because inventory data becomes outdated quickly, additional time is necessary to keep the inventory data current.

The Cost

The cost of conducting a manual audit of your network is related directly to the time it takes to perform an inventory. Use the following worksheet to calculate the cost of performing an inventory of your network.

Enter the average hourly wage earned by your network manager	A	_____
Enter the number of workstations on your network	B	_____
Enter the time required to conduct a manual audit (.5 hr. x B)	C	_____
Total cost of network inventory (C x A)	D	_____

For example, if your network manager earns $40,000 a year and administers a network of 20 workstations, the worksheet would look as follows:

Enter the average hourly wage earned by your network manager	A	$19.23
Enter the number of workstations on your network	B	20
Enter the time required to conduct a manual audit (.5 hrs x B)	C	10
Total cost of network inventory (C x A)	D	$192.30

Performing an inventory of such a network costs $192.30. While this does not sound like a great deal of money, maintaining the inventory weekly basis would cost $10,000. Maintaining it inventory daily would cost $70,000!

The LAN Inventory Solution

LAN Inventory is the solution to your inventory needs. By collecting and maintaining information about your network's hardware and software, LAN Inventory puts all the necessary inventory information at your fingertips! Now you can perform a complete network inventory without even leaving your desk and in much less time than conducting manual audits, freeing your time for other important network management tasks.

LAN Inventory accesses several modules that collect and maintain information about your network configuration. This collected inventory data includes information regarding all file servers, and networked and stand-alone PC/MAC workstations.

During each audit, LAN Inventory detects the changes made to the network components and updates its database. You can configure LAN Inventory to alert you of specific inventory changes as they occur, by means of several different notification methods. The detailed hardware and software records can include serial numbers, purchasing information, warranty and maintenance data. With all these capabilities, LAN Inventory helps you perform your network inventory and audit quickly and easily, giving you complete control over your network assets.

LAN Inventory's Features

With LAN Inventory, you can:

- Record and update detailed hardware and software inventory information on networked and stand-alone PCs and MACs, file servers, and remote networks

- Integrate remote configurations into the network equipment baseline automatically

- Support multiple sites

- Detect application software changes and hardware configuration changes

- Track software versions

- View system files

- Track detailed vendor and warranty information

- Set extensive alerting capabilities

- Import inventory data

- Generate pre-defined and custom reports on your inventory activity

- Detects faulty Pentium chips

Environment

The following criteria must be met in order to run LAN Inventory:

Server Requirements

- Network Operating System: Novell NetWare 3.X and 4.X

- Network Disk Space: 18 MB required   25 MB recommended

- Btrieve Database Access: BTRIEVE.NLM

- BSPXCOM version 5.15 or greater

- BROUTER (optional) version 5.15 or greater

Administrator Console Requirements

- Operating System: DOS 5.0 or greater

- User Interface: Microsoft Windows 3.1X in enhanced mode

- Btrieve Database Access: server based: BREQUEST.EXE 6.1 or greater

- CPU: 386SX or higher

- RAM: 4 MB

- Disk Space: 15 MB + 50K per workstation

- Monitor: VGA or better

Workstation Requirements

DOS Workstations

- Operating System: DOS 3.3 or greater

- Btrieve Database Access: server based: BREQUEST.EXE 6.1 or greater

   local based: BTRIEVE.EXE

Macintosh Workstations

- System 6.0 or greater

NOTE: LAN Inventory operates on Novell NetWare via IPX/SPX and is compatible with NetWare 4.X (note that bindery emulation is required to audit a 4.X server) and NMS. LAN Inventory includes multi-user BTRIEVE 6.10e.

Manual Organization

Chapter	Description
Chapter 1: Introduction	Provides background information & environment requirements.
Chapter 2: Installation	Provides complete installation instructions.
Chapter 3: Getting Started	Describes the console, key Windows terms, accessing LAN Inventory and provides a brief tutorial.
Chapter 4: Set-up and Administration	Describes how to define and manage the inventory databases, audit control information, notification parameters and printer set-up.
Chapter 5: Collecting Inventory	Describes how to collect inventory information from networked and stand-alone PCs and MACs.
Chapter 6: Conducting an Audit	Provides audit checklist and instructions.
Chapter 7: Reviewing Audit Results	Describes how to review and manage the Audit Log and Unidentified Software information.
Chapter 8: Maintaining the Baseline Inventory	Describes the Inventory Summary windows and how to view and edit equipment information, system files and software applications.
Chapter 9: Inventory Reports	Describes how to generate pre-defined and custom inventory and distribution reports.
Appendix A: Equipment Database	Lists equipment inventory record types and their contents as well as information collected by the EQUIP.EXE program.
Appendix B: Troubleshooting	Lists LAN Inventory's error messages and explanations.

Appendix C: Using Brequest	Describes how to use and configure the server-based Btrieve record manager.
Appendix D: Btrieve Status Codes	Lists the return status codes for Novell's Btrieve Record Manager.
Appendix E: NMS Smart-Launch	Describes the NMS Smart-Launch feature.

Chapter 2   Installation

Chapter 1 introduced LAN Inventory's features and management capabilities. This chapter provides installation procedures for LAN Inventory.

NOTE: If you Purchased LAN Inventory with McAfee's BrightWorks package 2.01 or later, refer to Chapter 2, "Installation" of either the *Getting Started: BrightWorks* guide or the *Using BrightWorks* manual for installtion procedures.

Before Installation

To install LAN Inventory, you must:

- Run Windows 3.1X in enhanced mode

- Have the following line in the [386Enh] section of your SYSTEM.INI file:

  `network=*vnetbios, vnetware.386, vipx.386`

- Have a drive mapped to your SYS: volume on the target server

The following file versions are recommended for LAN Inventory:

- IPX version 3.10

- NETX version 3.26 or greater

- Windows version 3.1X in enhanced mode

- VIPX version 1.13

- NETWARE.DRV version 2.02

- VNETWARE.386 version 1.06

NOTE: If you are using ODI drivers instead of IPX, you must have the following:

- LSL version 1.2 (2.01 is recommended)
- IPXODI.COM version 1.2 (2.12 is recommended)

The latest versions of these files can be found on Compuserve in the Novell Libraries (GO NOVFILES). Current IPX, NETX, and IPXODI files are contained within the self-extracting files named VLMUP2.EXE and NET33X.EXE. Detailed information regarding these changes are located in DOSUP9.TXT.

Current versions of the Novell support drivers for Windows (VIPX.386, VNETWARE.386, NETWARE.DRV, etc.) are no longer contained in the self-extracting file WINUP9.EXE. WINDR2.EXE and NWDLL2.EXE have replaced the WINUP9.EXE file, detailed information regarding these changes are located in WINUP9.TXT.

NOTE: As these drivers are updated and added to the Compuserve file, the number within the Compuserve filename will increment. For example, if Novell releases a newer IPX and adds it to WINDR2.EXE, the name will change to WINDR3.EXE.

Determining Version Numbers

You can determine the versions of the above software by using the following methods:

- For IPX and the NETX shell versions, use the Novell NVER command.

- For Windows version and mode, run Windows and choose Help | About Program Manager.

- For both Novell Windows support drivers and IPXODI.COM file versions, use the Novell VERSION command. For example, type:

```
VERSION VNETWARE.386 <ENTER>
or
VERSION IPXODI.COM <ENTER>
```

LAN Inventory Installation

Installing LAN Inventory is quick and simple and requires minimal user input. You can exit the installation at any time by choosing Exit in the lower right corner of the installation screen.

NOTE: During installation, LAN Inventory modifies your existing WIN.INI file and backs up the old file as WIN.MCF. This change does not affect your Windows performance.

Refer to Appendix C, "Using Brequest" for information about installing and configuring BREQUEST.EXE and the Btrieve NLM. (The NLM and

BREQUEST.EXE are required both to run the LAN Inventory console and to perform the upgrade install.)

Use the following procedure to install LAN Inventory on your network.

1. Verify that you have a drive letter mapped to the SYS volume for the file server on which you are installing LAN Inventory.

2. Start Windows 3.1X.

3. Place the first distribution diskette in your floppy drive if you are installing from diskettes.

    If you are installing from a CD ROM (CD), place the CD in your CD drive. If you are installing the BBS release, decompress the zipped files into a directory on your local or network drive.

    NOTE: If you are installing the BBS release, unzip the files into a directory on your local or network drive.

4. Choose File | Run from your Windows Program Manager.

    The Run dialog box is displayed.
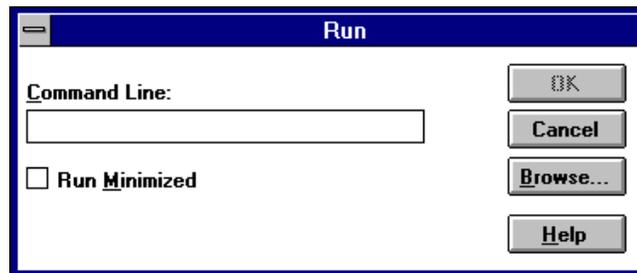
Figure 2-1: Run dialog box

5. At the prompt, enter the drive letter of the floppy, CD, or hard drive where you inserted the distribution diskette, CD, or where you unzipped the program files from the BBS and then type SETUP.

    For example, type:

    ```
    A:\SETUP <ENTER>
    ```

    or

    ```
    F:\LAI.320\SETUP <ENTER>
    ```

    At this point, a message is displayed informing you that "Setup is initializing."

NOTE: A log file is created and placed in your WINDOWS directory. The log file is an ASCII file listing the location of the LAN Inventory installation. The log file also lists any errors that occurred during installation. If an error that prevents completion of the installation process occurs, the log file will display automatically.

The Welcome dialog box is displayed.

Figure 2-2: Welcome dialog box

6. Choose Continue.

The Installation Configuration dialog box is displayed.

Figure 2-3: Installation Configuration dialog box

NOTE: The Installation Configuration dialog box displays both the required space needed to run the LAN Inventory install and the available space on the current server. If there is insufficient space, you will have to choose a new destination (i.e., volume or file server).

---

7. Type your company name in the Company Name text box.

8. Select one of the following install options:

Option	Description
New Install	Copies LAN Inventory files to the network and automatically creates the Program Manager group McAfee (if not found) containing the LAN Inventory program, the Crystal Reports program and all associated Readme file icons.
Upgrade	In addition to New Install features, it allows you to automatically upgrade from either previous versions of LAN Inventory with minimal user input.

9. Select a server from the server drop-down list box.

The drop-down list box displays all the file servers to which you are currently attached and have a drive mapped. LAN Inventory verifies that you have SUPERVISOR rights on the selected file server.

10. Confirm the Directory in the Directory text box.

    The drive letter and full directory must coincide with the file server you selected earlier. LAN Inventory creates the directory if it does not exist. The default drive letter is the first one found on the server you specified. LAI.320 is the default directory.

11. If you want to change the directory, choose Change Directory.

    The Change Directory dialog box is displayed.
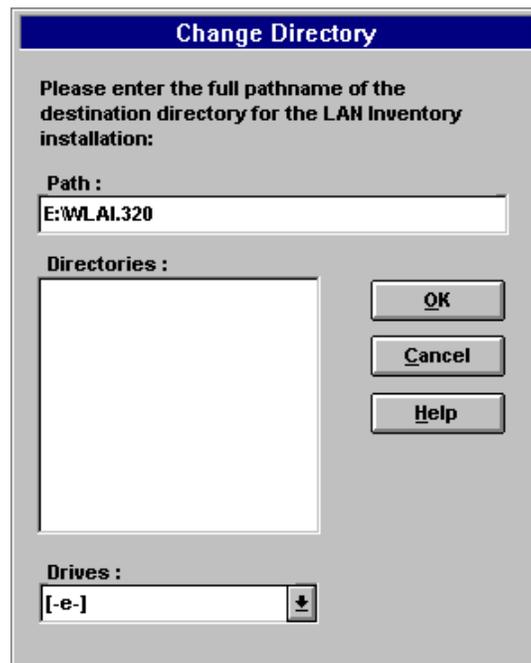
Figure 2-4: Change Directory dialog box

    Select the desired directory and path and choose OK to return to the Installation Configuration dialog box.

12. If desired, deselect the Configuration Options.

    By default, the install procedure configures both your workstation and server. Simply select the checkbox to disable these settings.

    If you do select the Workstation Options button, the Workstations Configuration Options dialog box is displayed.

Figure 2-5 : Workstation Configuration Options

If you do select the Server Options button, the Server Configuration Options dialog box is displayed.

Figure 2-6: Server Configuration Options

Select the desired options in either dialog box and choose OK.

13. Choose Continue to proceed with the installation.

A dialog box is displayed with a percent completed bar.

14. If you selected the Upgrade option, refer to the next section for additional instructions.

If prompted, insert the remaining disks to complete the installation.

The Setup Information dialog box is displayed.
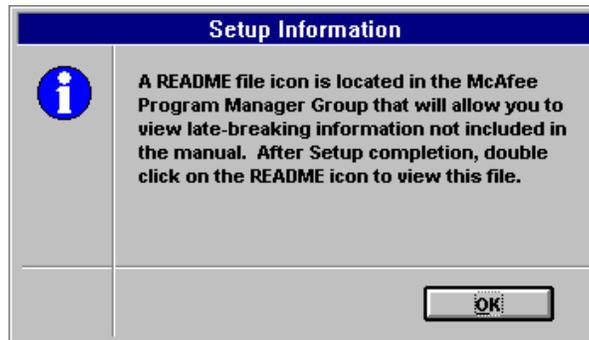
Figure 2-7: Setup Information dialog box

15. Choose OK to indicate that the installation is complete. View the Readme file for any updated product information.

The installation is complete. Refer to Chapter 3, "Getting Started" for a description of LAN Inventory's console and tutorials introducing LAN Inventory's capabilities.

Upgrade Install

The Upgrade option installs into a new LAN Inventory directory and imports data from an old version of inventory software. Continue with the following steps to complete the Upgrade Install procedure.

15. After choosing Continue, another Change Directory dialog box is displayed prompting you to enter the .DAT files' location from previous LAN Inventory installations.

Figure 2-8: The Change Directory dialog box

16. If prompted, insert the remaining disks to complete the installation.

The installation is complete. Refer to Chapter 3, "Getting Started" for a description of LAN Inventory's console and tutorials introducing LAN Inventory's capabilities.

Configuration Procedures

These instructions review the installation process and provide important information about installing the product NLMs.

Important: BREQUEST.EXE version 6.10 or later must be properly loaded to run the LAN Inventory Administration program and USAGE.EXE. For instructions on setting up server-based Btrieve, refer to Appendix C, "Using Brequest."

NOVDB.INI file must exist in the Windows directory. For server-based Btrieve, the Local=NO line should exist in that file.

If you are using LAN Inventory and receive the following error message:

```
LAN Inventory: The Novell Brequester has not been
loaded. LAN Inventory databases will not be optimized.
To optimize performance of this program, load the
Btrieve.NLM on your server, the BREQUEST.EXE TSR on your
```

```
workstation (with argument /d:17000), and restart
Windows and LAN Inventory.
```

and to the best of your knowledge Btrieve has been properly loaded, read the
following instructions and take the appropriate steps.

This error occurs if the BTRIEVE.NLM or the BSPXCOM.NLM is not loaded on
the file server. Please take the following steps:

1. At the file server console, type BSTOP.

    This unloads the NLMs.

2. Type BSTART.

    This loads both BTRIEVE.NLM and BPSXCOM.NLM on the file server.

Loading the LAN Inventory NLM

The LI.NLM needs to be loaded in order to conduct network audits. To do this, at
the file server type:

```
LOAD LI.NLM
```

There are also several command line parameters that can be used in conjunction with
the LI.NLM. The table below lists these parameters and their descriptions:

Parameter	Description
-p	This parameter sets the priority which controls server utilization. You can specify a priority from 1 to 10 at the command line using this option (10 is the lowest). The default is a priority of 10.
-d	While an audit is not in progress, the NLM will poll the configuration files for changes. You can use this option to control how often polling is done by the NLM. The format is -dtime, where time is in minutes. The default is 5 minutes.
-n	This option prevents NWSNUT.NLM from being loaded. This NLM will be used if already loaded on the server, but if it is not loaded, an attempt will be made to load NWSNUT.NLM unless the -n parameter is issued on the command line. This option is useful for servers with limited memory.
-b	This option prevents BROUTER.NLM from being loaded. If this NLM is not loaded, an attempt will be made unless the -b parameter is issued on the command line. Brouter is not required if all the sites are on the local server, and using this parameter in this case will save server memory.

All the above parameters are optional and can be prefaced by -, / or \. The filename command line parameter, however, must be the last parameter on the command line.

You can also do this through the AUTOEXEC.NCF file if you want the LI.NLM to be loaded every time the file server system console is brought up.

To unload the LAN Inventory NLM, type:

```
UNLOAD LI.NLM
```

at your file server console.

Chapter 3 *Getting Started*

Chapter 2 provided LAN Inventory installation and upgrade instructions. This chapter introduces and discusses the LAN Inventory application window and provides a brief tutorial outlining key LAN Inventory features.

The LAN Inventory Console

This section describes the LAN Inventory console. In addition to providing instructions for launching and exiting LAN Inventory, it describes the menu bar, tool bar and help facility.

Windows Terms

The LAN Inventory console is designed to be used with a mouse (refer to "Using the Keyboard" on page 30 for instructions on using LAN Inventory without a mouse). The table below briefly defines several Windows terms regarding the use of the mouse and product windows.

Term	Description
Button 1	The selection or primary mouse button (usually the left button, but can be switched using the Control Panel).
Cancel	Choose Cancel to exit the current dialog box without saving any of the changes you made in the dialog box or without executing a command you chose in the dialog box.
Choose	Double-click the mouse button (or use a key combination) on an item to initiate an action. For example, "Choose the LAN Inventory icon" should be interpreted as a double-click on the LAN Inventory icon.
Click	Press the mouse button once.
Double click	Press the mouse button twice in quick succession.
Icon	A graphic representation of an executable or function.
Point	Position the cursor on the screen to rest on the desired item.

Property Sheet	Windows tab metaphor that locates related information in a single dialog box and allows easy navigation from tab to tab.
Spin Control	Arrows that increase or decrease the value displayed in the accompanying text box.
Scroll	Use the scroll bars and buttons to move through a list of items.
Select	Mark an item by clicking on it or by highlighting it with either key combinations or the mouse. For example, "Select the Include Path option" should be interpreted as clicking or highlighting the Include Path item.

NOTE: The remainder of this manual assumes that you are familiar with Windows. Refer to your Microsoft Windows manual for information on the fundamental operating conventions of the Windows environment.

Accessing LAN Inventory

After successfully installing LAN Inventory, a McAfee Program Manager group and a LAN Inventory program icon are created on your Windows desktop.

Use the following procedure to launch LAN Inventory.

1. Load Brequest.

    Server-based Btrieve must be used with the LAN Inventory console.

2. Run Windows, and double click on the LAN Inventory program icon.

    The LAN Inventory application window displays with the following items which are discussed in this section:

    -   The LAN Inventory Menu Bar

    -   The LAN Inventory Tool Bar

    -   Access to LAN Inventory's On-Line Help

Exiting LAN Inventory

Use the following procedure to end a LAN Inventory session.

1. Choose File | Exit.

    The Exit LAN Inventory dialog box is displayed prompting you to confirm the exit action.

Figure 3-1: LAN Inventory's Exit Prompt

2. Choose OK to close the LAN Inventory application.

LAN Inventory Menu Bar

The LAN Inventory menus contain all the commands necessary to use LAN Inventory's features. To choose a menu, point to the menu name and click the left mouse button; the menu displays. The menus and their commands are listed in the table below:

Menu	Command
File	Print Setup, Purge Inventory Baseline, Import Inventory Baseline, Create Collector Diskette, Load Equipment from Collector Diskette, Exit
View	NLM Status, Audit Log and Hide Status Bar
Configure	Audit Parameters, Alerting, Qualification Lists, Unidentified PC/Fileserver Software and Unidentified Macintosh Software
Tools	Inventory, VirusScan, NetShield, LAN Support Center, NetRemote and NetTune
Reports	Choose Report and Edit Reports
Window	Cascade, Tile Vertically, Tile Horizontally, Arrange Icons and Close All
Help	Index, Using Help and About

NOTE: Holding down the left mouse button over a menu command displays the command's function in the LAN Inventory title bar at the top of the application window.

LAN Inventory Tool Bar

When using LAN Inventory with a mouse, LAN Inventory's tool bar buttons provide an alternative for accessing the most frequently used LAN Inventory functions. The tool bar is shown in Figure 3-2.

Figure 3-2: LAN Inventory Tool Bar

Instead of choosing commands from the drop-down menus, you can choose the tool bar buttons to perform the same tasks.

The function of each tool bar button is described below:

Button	Description
Inventory	Displays the Inventory window used for viewing and managing the inventory of each audited workstation.
NetRemote	Provides access to optional McAfee NetRemote software for remote user support.
SupportCtr	Provides access to optional McAfee LAN Support Center software for help desk automation.
NetShield	Provides access to Novell's RCONSOLE program. From this point, you can use the Browse feature to access NetShield, optional McAfee NetShield software that is a Novell NetWare loadable module (NLM) and provides uninterrupted server-based virus protection.
Alerts	Displays the Alerting Options dialog box used for defining and scheduling auditing alerts.
Reports	Displays the Choose Report dialog box used for generating inventory reports.

NOTE: Holding down the left mouse button over a tool bar button displays the button's function in the LAN Inventory title bar at the top of the application window.

Using the Keyboard

To use LAN Inventory without a mouse, perform the standard Windows keyboard actions to navigate through the program.

Each menu item on the LAN Inventory menu bar has a keyboard mnemonic. Press the <ALT> key in combination with the keyboard mnemonic to choose a menu. For example, press the <ALT><F> keys to choose the File menu and display its commands.

Each command also has a keyboard mnemonic. Once the menu is displayed, choose the keyboard mnemonic of the desired command. For example, from the File menu, press <R> to choose Printer Setup. You can also use the <up/down arrow> keys to select a command and press ENTER to execute the command.

For detailed information on using a Windows application with the keyboard, refer to your Microsoft Windows documentation.

NOTE: While many of LAN Inventory's features can be used with the keyboard, the inventory summary spreadsheet window and several of the other features do require the use of a mouse and cannot be accessed with the keyboard.

LAN Inventory's Help Facility

LAN Inventory's help facility provides on-line assistance for using the LAN Inventory software. To get information quickly about a LAN Inventory feature or procedure, choose Help | Help Index to display a list of topics. From this list, choose the desired topic.

LAN Inventory's Help system is written in a standard Windows hypertext format, allowing you to jump from one topic to another by simply choosing topic names from a list. In addition, several buttons display across the top of the Help dialog box allowing you to search for topics and also to view a list of the topics you have visited.

For detailed information on using a Windows help facility, refer to your Microsoft Windows documentation.

Printer Setup and Administration

Before printing LAN Inventory reports, you should review the global print parameters to ensure that they reflect the printer settings that you require.

Printer settings include:

- Printer destination

- Page orientation (portrait/landscape)

- Paper size and source

- Graphics resolution

The procedures for customizing the contents of individual LAN Inventory reports are discussed in Chapter 9, "Inventory Reports." This section briefly presents the procedures for viewing and changing Windows global print settings (e.g., target printer, paper size, etc.).

NOTE: Please refer to your Microsoft Windows manual for detailed procedures on modifying the Windows print settings.

Changing Print Settings

Use the following procedure to review and change your print settings.

1. Choose File | Print Setup.

   The Print Setup dialog box is displayed.
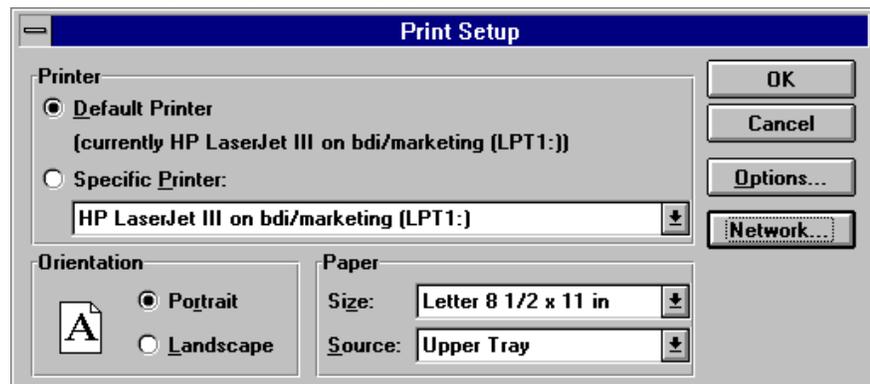
Figure 3-3: Setting Print Parameters

   If you have the latest version of COMMDLG.DLL, this dialog box will have a Network button.

2. Select the printer you want to use for printing LAN Inventory reports.

   The printer selected from your Windows printer control is selected as the default. To use another printer, select a Specific Printer from the drop-down list associated with this field.

NOTE: Choosing a specific printer does not permanently change your printer setting.

3. Select the desired orientation and paper parameters.

   Choose either the Portrait (long) or Landscape (wide) Orientation radio button. Use the drop-down lists to define the Paper Size and Paper Source settings.

4. To make additional changes to the selected printer configuration, choose Options.

   Additional settings include dithering and intensity control.

5. Choose OK in the Print Setup dialog box to save the print settings.

Inventory Configuration Options

Before you begin to inventory your network components, you must verify that the appropriate rights have been granted to the LAN Inventory program directory.

Assigning Rights To a Common Directory

Users need READ, WRITE, FILESCAN, CREATE and ERASE rights to the directory from which the EQUIP file will be executed. These rights are required in order to update the transaction and log files upon executing the EQUIP.EXE program.

Upon LAN Inventory installation, EQUIP.EXE and all transaction and log files reside in the LAI.320 program directory.

Establishing a Separate Transaction Directory

If granting extensive rights to a program directory (i.e., the LAI.320 directory) is a concern, then follow the steps below to set up a separate "transaction directory" from which your users can execute EQUIP. *By doing so, your users will no longer need any rights to the LAI.320 directory.*

You may also want to create separate transaction directories to maintain individual network sites. Defining sites is useful for categorizing your inventory data. By establishing a separate transaction directory, you are defining a directory into which a site's inventory data will be collected. For example, you might want to maintain a separate inventory for your Sales Department. To do so, you must define a site for the Sales Department (e.g., the SALES site). You also must establish a separate transaction directory for the SALES site. The collected inventory data for all workstations included in the SALES site will be maintained in the new sales transaction directory.

NOTE: The LAI.320 program directory must always be defined as a site because it maintains the file server, MAC and stand-alone inventory data.

BrightWorks' software distribution capabilities can be used to distribute software and/or scripts to any workstation in the LAN Inventory local site only (i.e., the site which identifies the LAI.320 program directory). Sites are discussed in detail in "Maintaining Network Sites" in Chapter 4, "Set-up and Administration."

SHORTCUT: The instructions below should be used by those who wish to manually populate your transaction directory. Otherwise, choose Configure | Audit Parameters to display the Audit Parameters dialog box. Use the Define Sites property sheet to copy all necessary files to a transaction directory. Refer to Chapter 4, "Set-up and Administration" for further instructions.

Use the following procedure to establish a transaction directory in which EQUIP can collect inventory data.

1. Create a transaction directory on the fileserver.

   To allow all your network users access to the EQUIP inventory program, create the new directory on the file server. For example, create a directory named F:\LAI.320\SALES.

2. Grant rights to the transaction directory.

   Users need READ, WRITE, FILESCAN, CREATE, and ERASE rights to the directory from which the EQUIP file will be executed. These rights are required in order to update the transaction and log files upon executing the EQUIP.EXE program.

3. Copy the required administration files into the new transaction directory.

   Several administration files must be copied into the transaction directory; however, the files must first be configured using the LAN Inventory console program.

   a - To configure the administration files, choose the Configure | Audit Parameters. In the Audit Parameter Configuration dialog box, select the Software Options property sheet.

   b - Select the Workstation software option and define the unknown file extensions and system files to be identified.

   c - Choose OK to accept the configuration changes and exit LAN Inventory.

   d - Use the DOS Copy command to copy the following administration files into the new transaction directory. (The audit NLM may have some of these files open, and Novell's NCOPY or Novell's Filer might fail with "Sharing

violations" if the audit NLM has them open. The DOS Copy command, however, will not fail.

- WAUDCFG.DAT

- WFIDPC.DAT

- WIDPCSFT.DAT

- WSYSFLST.DAT

Copy the following files if you plan to inventory Macintosh machines:

- MACEQUIP

- WFIDMAC.DAT

- WIDMCSFT.DAT

- WMCSLIST.DAT

4. Copy the required EQUIP files into the new transaction directory.

The files required to execute EQUIP are:

- EQUIP.EXE

- BTRIEVE.EXE or BREQUEST.EXE (depending on the Btrieve method you are using at the client workstations)

- ENDBTRV.EXE

- WPCSLIST.DAT

- NRCALL.PID

- CPUTABLE.TXT

Several transaction files also need to be in the transaction directory. The first time EQUIP is run in a new transaction directory, you are prompted to instruct EQUIP to create the following files.

- WEQTRN.DAT

- WEQLOG.DAT

- WFREQNCY.DAT

- WTRSOFTT.DAT

- WSYSFTRN.DAT

- WSYSFLOG.DAT

> **NOTE:** In order for EQUIP to execute properly, you should not copy the transaction files from the LAN Inventory directory to the transaction directory manually.

5. Define the transaction directory as a Site.

   Use one of the following methods:

   - From the LAN Inventory menu bar, choose Configure | Audit Parameters, and then select the Define Sites property sheet to define the new site and its path.

   - When EQUIP first executes in the new transaction directory, you will be prompted to enter a Site name (if the Site has not yet been defined). Then define the site and its path from within LAN Inventory by choosing Configure | Audit Parameters, and selecting the Define Sites property sheet.

> **NOTE:** If LAN Inventory finds the existing .DAT files, a message box is displayed prompting you to either choose Yes to use the existing path or No to redefine the path. In this case, you are returned to the Add Sites dialog box.

At this point, the new transaction directory is established. To include the transaction site data in your baseline (i.e., to include the data in an audit), choose Configure | Audit Parameters, select the Site Scope property sheet and include the transaction site in the audit scope.

From within the LAN Inventory console, any changes made to the PC Software List, the "System Files to Inventory on Local Site" option, the "Unknown Files to Identify on Local Site" option or the Audit Parameters window options will update the files in the LAI.320 program directory. Refer to Chapter 7, "Reviewing Audit Results" for a detailed explanation of the PC Software List. (The file names are WPCSLIST.DAT, WSYSFLST.DAT, WFIDPC.DAT and WAUDCFG.DAT, respectively.) To maintain the changes, you must copy the updated files into the transaction directory before running EQUIP again.

Before you perform an audit of your inventory databases, the WIDPCSFT.DAT file (the list of unidentified software) in the transaction directory needs to be appended to the same file name in the LAI.320 directory. Use a third party utility to append one file to another file. For example, Novell's BUTIL.EXE or Magic Solution's BU.EXE can be used to do this. (BU.EXE is shipped with LAN Inventory. It is located in the self-extracting file named TOOLS.EXE in the LAI.320 program directory.)

For example, use the following procedure to use BUTIL.EXE to append the files.

1. Load Btrieve.

   You can use either BTRIEVE.EXE or BREQUEST.EXE.

2. At the DOS prompt, enter the BUTIL -copy command, with the following syntax: BUTIL -COPY <source file> <target file>.

The command you enter may look similar to the following:

```
BUTIL -COPY f:\transdir\widpcsft.dat f:\LAI.320\widpcsft.dat
```

3. Use the ENDBTRV command to unload Btrieve.

Note also that the BU.EXE COPY syntax is exactly the same as the BUTIL syntax; simply replace the BUTIL command with BU.

Improving LAN Inventory's Database Performance

LAN Inventory uses the Novell Btrieve Record Manager to manage its database records. Btrieve is integrated with NetWare and offers an extremely high performance mechanism for storing information. In addition, Btrieve is the basis for Novell's Network Management System (NMS), which allows McAfee to integrate easily with this important management platform. Btrieve must be loaded before running the EQUIP program. There are two methods of implementing Btrieve:

Method	Description
Server-based	All data processing is done at the file server by the Brequestor (the Btrieve NLM). Each workstation communicates with the NLM by loading BREQUEST.EXE in the local PC's memory. Brequest uses 31-45KB of RAM, depending on the options specified. (Version 6.10 or greater is required when using Brequest with LAN Inventory.) It is much faster than the local Btrieve, but it requires, however, that the NLM be loaded on the file server.
Client-based	Workstations load an executable version of the record manager (BTRIEVE.EXE) and perform all data processing locally. Btrieve uses approximately 85KB of RAM and is much slower than Brequest.

NOTES: a - General instructions for configuring the Btrieve NLM are provided in Appendix C, "Using Brequest." Refer to your Novell documentation for details on configuring Btrieve.

b - When running the Brequestor, the BSPXCOM.NLM must also be loaded. Refer to your Novell documentation for details on loading these programs.

c - Verify that you are running the latest versions of the Btrieve files. Updated Btrieve files can be found on Compuserve in the Novell Libraries (GO NOVLIB).

EQUIP is fully compatible with both methods of access, but the LAN Inventory console only supports server-based Btrieve. LAN Inventory is shipped with BTRIEVE.EXE.

LAN Inventory provides two batch files for loading Btrieve:

- BTR.BAT loads local Btrieve (BTRIEVE.EXE)

- BRQ.BAT loads server-based Btrieve (BREQUEST.EXE)

All batch files provided with LAN Inventory are placed in the LAI.320 program directory upon installation.

Placing EQUIP in the Login Script

To ensure that EQUIP is executed on a regular basis, the EQUIP command can be placed in the system login script. The following example illustrates how EQUIP can be executed from within a system login script. BTRIEVE or BREQUEST must be loaded before EQUIP is run and unloaded after EQUIP has completed gathering the inventory.

```
....
MAP F:=FS/SYS:LAI.320
DRIVE F:
#BREQUEST /D:17000
#EQUIP /H /S
#ENDBTRV
....
```

where F:=FS/SYS:LAI.320 is the drive ID and complete path where the LAN Inventory files are stored.

The login script can also call a batch file to execute EQUIP, as in the following example:

```
....
MAP L:=server/vol:apps\LAI.320
drive L:
#command /c DOEQUIP.BAT
DRIVE F:
```

where DOEQUIP.BAT is:

```
@echo off
endbtrv
brequest /d:17000
EQUIP /Hd /Sw /Yw /noshow
endbtrv
```

NOTE: EQUIP will launch using the above example provided your Comspec is set up properly.

In the above login script, the /c switch instructs the login script to close and return to the location where it started. This method is useful for all fileservers, especially NetWare 4.X, which will avoid possible conflicts with Brequest.

NOTE: When mapping to the LAI.320 directory, ensure that you use a straight logical map. MAP ROOTS and MAP INS are not allowed.

For further information regarding EQUIP and BTRIEVE, refer to Chapter 5, "Collecting Inventory" and Appendix C, "Using Brequest" respectively.

Tutorial

This tutorial outlines the major steps in using LAN Inventory to perform an inventory and a subsequent audit of network components.

This tutorial includes the following steps:

1. Collecting Inventory Data (using the EQUIP.EXE program)

2. Configuring the Audit Parameters

3. Running an Audit

4. Viewing the Audit Results (audit log and inventory details)

NOTE: LAN Inventory must be installed on your network before beginning the tutorial. If you have not already done so, please refer to Chapter 2, "Installation." The options and features mentioned in this tutorial are discussed in detail in rest of this manual.

Step 1: Collecting Inventory Data

EQUIP.EXE is the program used to collect the inventory data of your networked PCs. The program is executed at the machine on which you want to perform the inventory. Inventory data includes hardware, software and system file information.

NOTE: Before running EQUIP you must set up the Btrieve database.

Use the following procedure to collect a workstation's inventory data.

1. Proceed to the PC workstation for which you want to collect inventory data.

2. Use the DOS CD command to change into the LAI.320 program directory.

3. Setup the Btrieve database.

   LAN Inventory provides two batch files which setup the Btrieve database. Issue the batch file which corresponds to the method of Btrieve you are using.

   - BRQ.BAT automatically issues the Btrieve setup command and loads Brequest. Brequest uses 25-49KB of RAM, depending on the version and the command line switches used. It is approximately 250% faster than the local Btrieve. The BRQ.BAT file consists of the following:

     ```
     BREQUEST /D:17000
     ```

   - BTR.BAT automatically issues the Btrieve setup command and loads local Btrieve. Btrieve uses approximately 85KB of RAM, depending on the

command line switches used. It is much slower than Brequest. The BTR.BAT file consists of the following:

```
BTRIEVE /P:3072 /F:22 /T:BTR.TRN /E
```

NOTE: Because of the increase in speed, Brequest is recommended for use at clients' workstations.

---

4. Issue the EQUIP command and collect the hardware and software component data for the PC you are using.

```
EQUIP /h /s <ENTER>
```

where */h* is the command line option used to specify hardware collection; */s* is the command line option used to specify software collection. Refer to "EQUIP Command Line Reference" in Chapter 5, "Collecting Inventory" for a listing of EQUIP command line options.

5. Respond to the prompts that display the *first time* EQUIP is run in a transaction directory.

Skip this step if EQUIP has already been executed from the current directory.

a - The first time EQUIP is run from any transaction directory, you are prompted to create new database files. Answer Yes to this prompt by typing Y and pressing the ENTER key. The EQUIP program will create the required transaction files.

b - After the database files have been created, EQUIP then prompts you to enter a Site ID name. LAN Inventory uses the Site ID to determine your workstation's location.

For example, enter the file server name as the Site ID. To do this, type:

```
(file server name) <ENTER>
```

where *(file server name)* is the name of your file server.

Upon pressing ENTER, EQUIP gathers the hardware and software information from the workstation.

NOTE: Follow Steps 1-4 above for each networked PC you want to inventory, or use the example described in "Placing EQUIP in the Login Script" on page 38 to automate inventory collection for networked PCs.

Step 2: Configuring the Audit Parameters

Several audit parameters must be defined before performing an audit of the collected inventory data. All audit configuration information is defined from within the LAN Inventory console.

The audit parameters that are defined in this step of the tutorial include:

Parameter	Dedscription
Audit scope	The sites and file servers to be audited
Audited components	The inventory components to be audited (i.e., hardware, software or both)

Use the following procedure to configure the audit parameters for this tutorial.

1. Choose Configure | Audit Parameters.

    The Audit Parameter Configuration dialog box is displayed, allowing you to select the sites and file servers to be included in the audit.

2. Select the Site Scope property sheet.
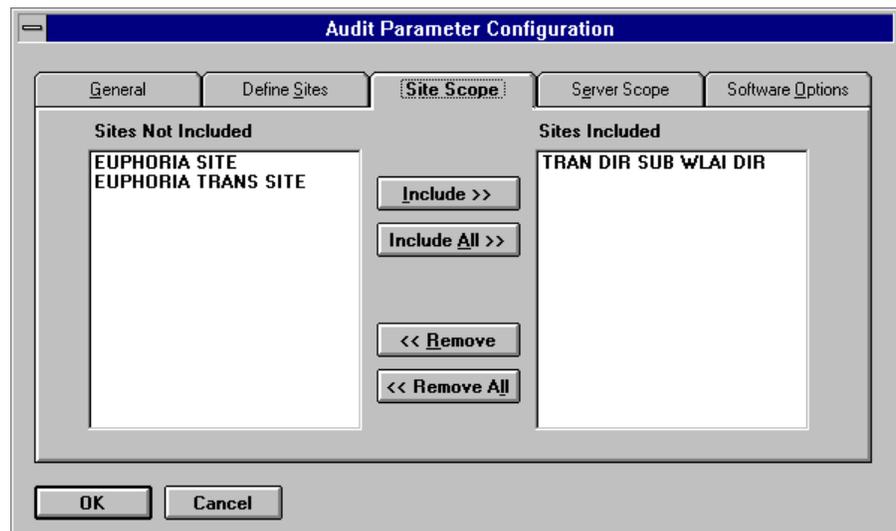
Figure 3-6: Site Scope Property Sheet

3. Select your local site from the Sites Not Included list.

4. Choose Include.

    The selected site is moved to the Sites Included list.

5. Select the Server Scope property sheet.
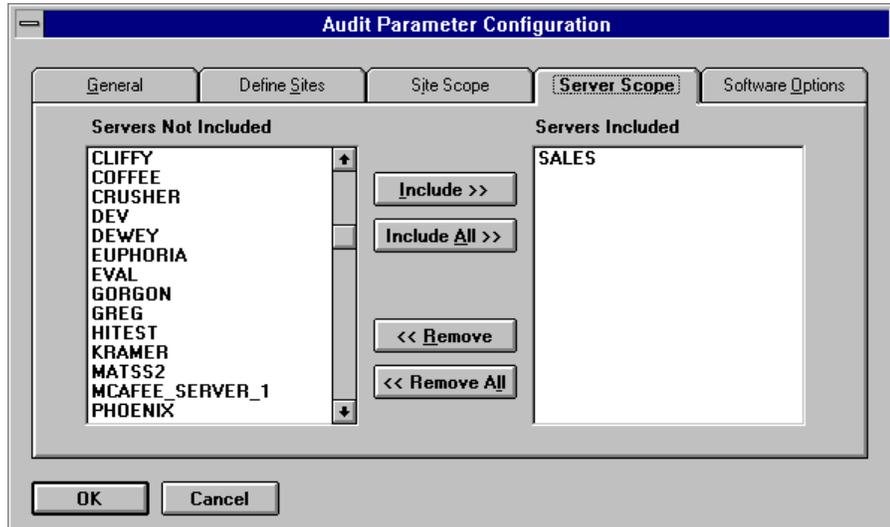
Figure 3-7: Server Scope Property Sheet

6. From the Servers Not Included list, select the file server on which LAN
    Inventory is installed.

7. Choose Include.

    The file server moves to the Servers Included list.

8. Select the General property sheet.
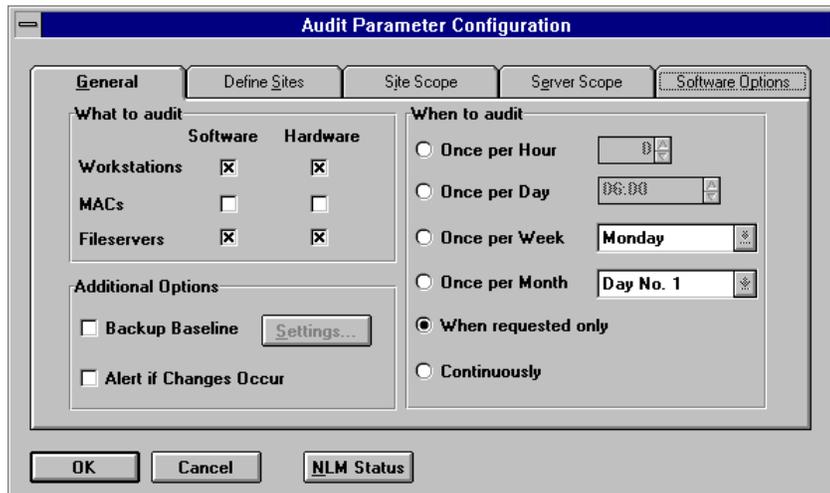
Figure 3-8 : The General Property Sheet

9. For this tutorial, select the following options:

   - What to Audit: PC Software and PC Hardware

   - What to Audit: Fileserver Software and Fileserver Hardware

   - When to Audit: When Requested

10. Choose OK.

   When a file server is included in the scope definition, a Server dialog box is displayed.
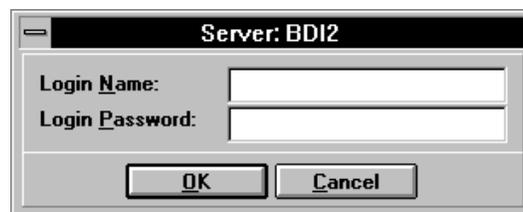
Figure 3-9: Including a File Server in the Audit

11. In the Server dialog box, enter a login name and password for the selected file server and choose OK.

   NOTE: You must have Supervisor rights or equivalent to include a file server in the audit scope.

   The configuration changes are saved.

NOTE: For further information regarding audit configuration procedures, refer to Chapter 4, "Set-up and Administration."

Step 3: Running the Audit

Conducting an audit compiles the collected equipment inventory data from your workstations and file servers and adds it to LAN Inventory's baseline inventory. Performing an audit updates the baseline inventory file to represent an accumulation of your most currently audited inventory information. The baseline inventory file provides data for various inventory reports, on-screen viewing, automatic notification of inventory changes, and the BrightWorks software distribution capability.

The audit process uses the currently defined audit parameters. Therefore, before you initiate an audit, you should verify that the audit parameters are set properly. (In the Step 2 of this tutorial, the audit scope was defined to include the local LAN Inventory site.)

Use the following procedure to perform an audit.

1. Choose View | NLM Status.

    The View NLM Status dialog box is displayed.
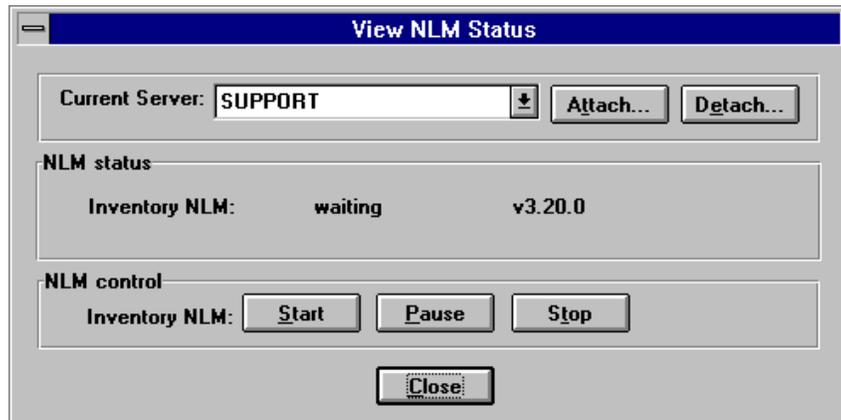
Figure 3-10 : View NLM Status Dialog Box

2. Choose Start.

    NOTE: The NLM must be loaded. Refer to Chapter 2, "Installation" for instructions on loading the LI.NLM.

    The audit process begins.

3. Choose Close when audit is complete.

NOTE: For further information regarding the audit process, refer to Chapter 6, "Conducting an Audit."

Step 4: Viewing Audit Results

As a result of performing an audit, LAN Inventory's equipment and inventory files are updated and are available for viewing.

The audit results viewed in this step of the tutorial include:

-   Audit log listing all audits with access to audit summary and detail information

-   Inventory listing component data for PC/MAC workstations and file servers

Use the following procedure to view the audit log and inventory details.

1. Choose View | Audit Log.

The Audit Log dialog box is displayed listing all the audits that have been performed, the date, time, "LAN Inventory" and the status for each audit.
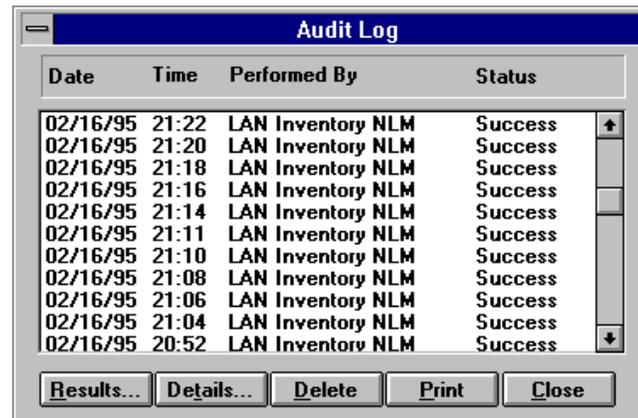
Figure 3-11: Viewing the Audit Log

2. To view the summarized results of an audit, select the audit from the Audit Log dialog box and choose Results.

    The Audit Results dialog box is displayed and lists the summarized results of the selected audit.
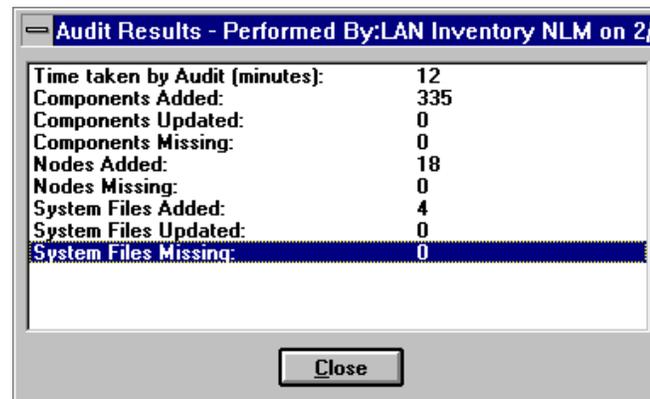
Figure 3-12: Viewing the Audit Summary Results

NOTE: The above Audit Results dialog box can also be displayed by double clicking on an audit in the Audit Log dialog box.

---

3. Choose Close to close the Audit Results dialog box.

4. To view the details of an audit, select the audit from the Audit Log dialog box and choose Details.

An Audit Details dialog box is displayed which contains an itemized list of audited components, nodes and system files.
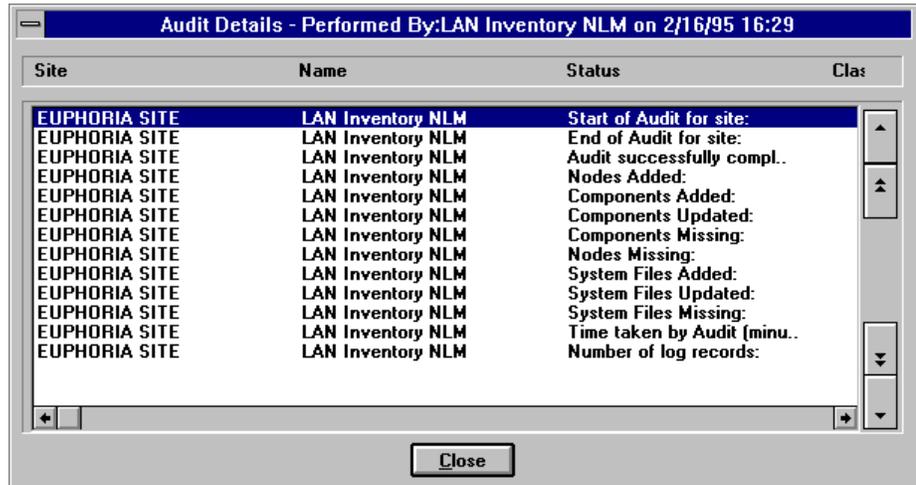
Figure 3-13: Viewing the Audit Details

Use the scroll buttons and scroll bars to view all the information.

5.   Choose Close to close the Audit Details dialog box.

6.   To view the inventory of your PC/MAC workstations and file servers, choose the Inventory tool bar button.

The Inventory window is displayed listing the workstations and file servers for each audited site.
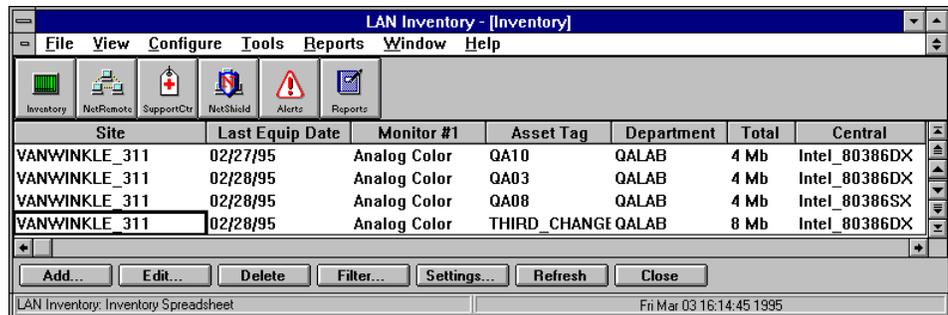
Figure 3-14: Viewing Inventory Data

Use the scroll buttons to view all the information.

7.   Select a workstation type entry and choose Edit.

The detailed inventory data for the workstation is displayed in an inventory details dialog box.
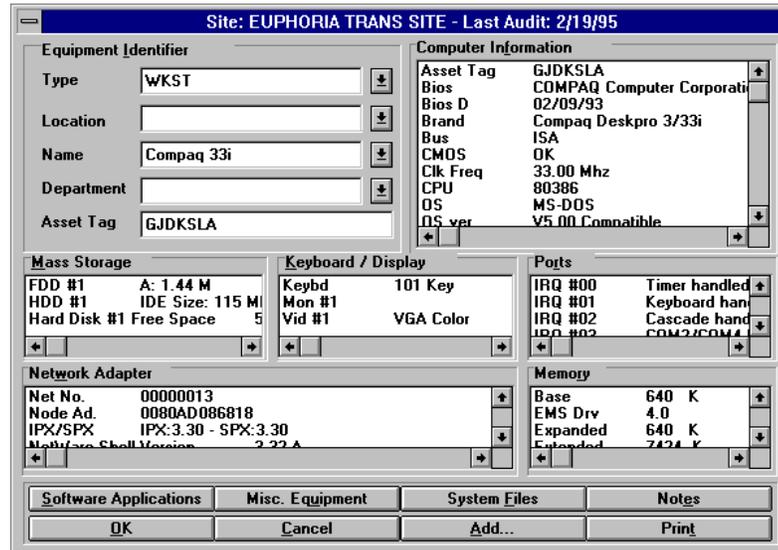
Figure 3-15: Viewing Inventory Details

Use the slide bars and arrows to view the information on the inventory screen.

The table below briefly lists the detailed inventory data displayed for PC and MAC workstations. A complete list of the detected equipment is provided in Appendix A, "Equipment Database."

PC Workstation	MAC Workstation
Computer Information	Computer Information
Mass Storage	Floppy drives
Keyboard/Display	Monitor type
Ports	Slot adapters and drivers
Network Adapter	Mounted volumes
Memory	

8. Choose Software Applications, Misc. Equipment, System Files and Notes to view additional component data regarding the workstation.

The corresponding dialog boxes provide detailed information regarding the selected workstation.

> **NOTE:** You can also view the Software Applications, Miscellaneous Equipment, and Notes associated with a file server.

9. When you have finished viewing the information for the workstation, choose OK to return to the Inventory spreadsheet.

10. Choose Close to close the Inventory window.

This completes the LAN Inventory tutorial. All of the features introduced here are described in full detail throughout *Using LAN Inventory*.

Chapter 4   *Set-up and Administration*

Chapter 3 introduced LAN Inventory's features. This chapter described how to set-up and administer inventory parameters, including: audit control parameters, inventory alerting options, inventory database data, and printer control information.

Introduction

The inventory set-up and administration features covered in this chapter are briefly described in the table below.

Feature	Description
Audit Parameters	Audit parameters refer to the settings and options which indicate where, how and when to run the inventory audits for your network(s). Before running an audit, LAN Inventory automatically refers to the defined options, which can be changed as needed.
Alerting and Notification Options	You can configure LAN Inventory to notify you of any inventory changes upon completion of an audit. Notification options allow you to receive notices via cc:Mail or various other electronic communications methods.
Inventory Databases	LAN Inventory provides several databases containing standard types of equipment, software and contracts that commonly apply to a network. LAN Inventory uses these databases, or "qualification lists," for data validation and for compiling equipment inventory records. You can add to, modify and remove entries from these databases to reflect your own environment.

Audit Set-up and Administration

After the inventory collection programs have been run on your networked and stand-alone PCs and MACs (i.e., EQUIP, SA_EQUIP and MACEQUIP), the inventory data is ready to be audited. You should perform audits periodically to keep your inventory accessible and current.

The first time an audit is performed, a "baseline inventory" list is generated. Every subsequent audit updates the baseline inventory to reflect the most recently collected inventory data.

This section describes the following procedures that should be performed before running an audit.

- Maintaining network sites

- Setting the scope of the audit

- Defining audit parameters

- Identifying the software to be inventoried

NOTE: To verify that the current parameters accurately reflect your intended audit, the audit settings should be reviewed before running your audit. You can adjust audit settings as needed.

Maintaining Network Sites

Defining sites is useful for categorizing your inventory data. For example, a company that has a network with two file servers might want to define two sites. Assuming that the Marketing Department uses one file server and the Sales Department uses the other, the two sites might be named MARKETING and SALES. Thus defined, you can perform an audit that compiles an inventory list for one or both departments. The hardware and software components for the individual departments (or sites) can be maintained separately.

A site is actually a directory (referred to as a "transaction directory") from which EQUIP is run. It contains, at the very minimum, the inventory transaction files. In the example above, all workstations in the SALES site execute EQUIP from within the SALES site directory. As a result, the collected inventory data for the SALES site workstations is maintained in the SALES transaction directory.

NOTE: Refer to "Inventory Configuration Options" in Chapter 3, "Getting Started" for procedures on defining a transaction directory. The LAI.320 program directory must always be defined as a site because it maintains the file server, MAC and stand-alone inventory data.

All the information necessary to define a network site, change site information, or remove a site from inventory consideration is contained in the Audit Parameter Configuration dialog box. To access this dialog box, choose Configure | Audit Parameters. As shown in Figure 4-1, this dialog box uses the property sheet metaphor to locate all the related information in a single place for convenient and simple audit parameter configuration.
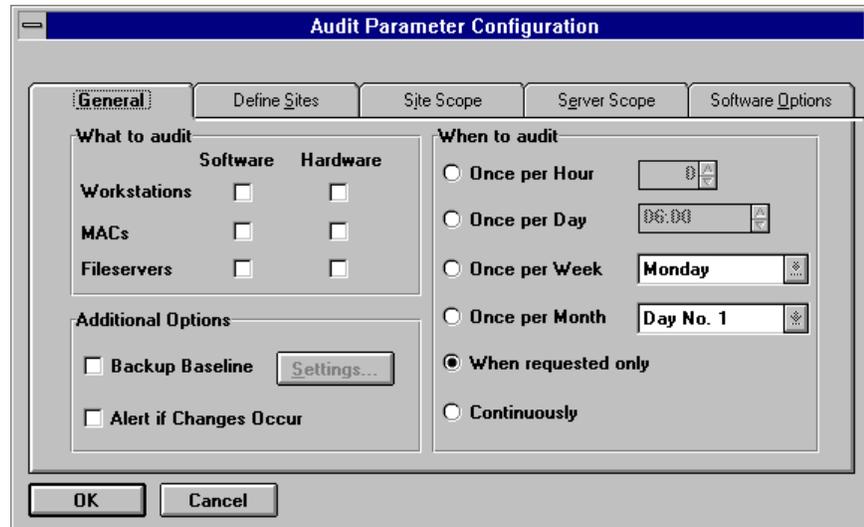
Figure 4-1: The Audit Parameter Configuration Dialog Box

The following sections describe each of these property sheet:

- General

- Define Sites

- Site Scope

- Server Scope

- Software Options

NOTE: The procedures below assume you have the Audit Parameter Configuration dialog box displayed on your desktop. To display this dialog box, choose Configure | Audit Parameters.

Setting the General Audit Parameters

Audit parameters identify the following:

- The software and hardware to be audited

- The audit schedule

- Whether or not the LAN Inventory baseline inventory file should be backed up before the audit

- Whether or not an alert should be made if changes are detected during an audit

Use the following procedure to define the audit parameters from the Audit Parameter Configuration dialog box.

1. Select the General property sheet.

2. Select the appropriate check boxes in the What to Audit group box to specify which components should be audited.

   You can choose to audit software and/or hardware for any combination of the following:

   - Workstations

   - MACs

   - Fileservers

3. Select the appropriate check boxes in the When to Audit group box to specify when audits should take place.

   Choose from the following options:

   - Once Per Hour

   - Once Per Day

   - Once Per Week

   - Once Per Month

   - When Requested Only

   - Continuously

   If you choose one of the first four items, use the accompanying drop-down list box to specify the exact time or day when the audit should run.

4. If desired, select the Backup Baseline check box in the Additional Options group box to back up the LAN Inventory baseline before each option. (Otherwise skip to step 8.)

The Settings option is enabled.

5. Choose Settings.

The Backup Baseline Settings dialog box is displayed.
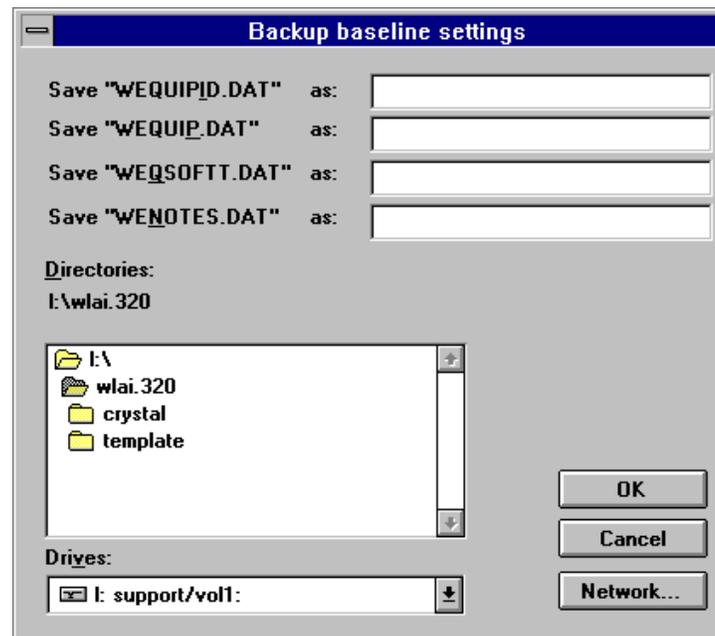
Figure 4-2: Backing Up Baseline Settings

6. Enter backup file names and specify the drive and directory to which the baseline files should be saved in the text boxes provided.

NOTE: The backup file names must be entered explicitly; wildcards are not allowed.

7. Choose OK to save the baseline settings and return to the General property sheet.

8. If desired, select the Alert If Changes Occur check box in the Additional Options group box to be notified of certain conditions and changes detected during the audit.

NOTE: The conditions and changes for which you want to be alerted are defined in the Alerting Options dialog box. Refer to "Alerting Set-up and Administration" on page 64 for further information.

9. Choose OK to save these general parameters and exit the dialog box.

Adding a Site

Use the following procedure to add or define a site with LAN Inventory from the Audit Parameter Configuration dialog box.

1. Select the Define Sites property sheet.
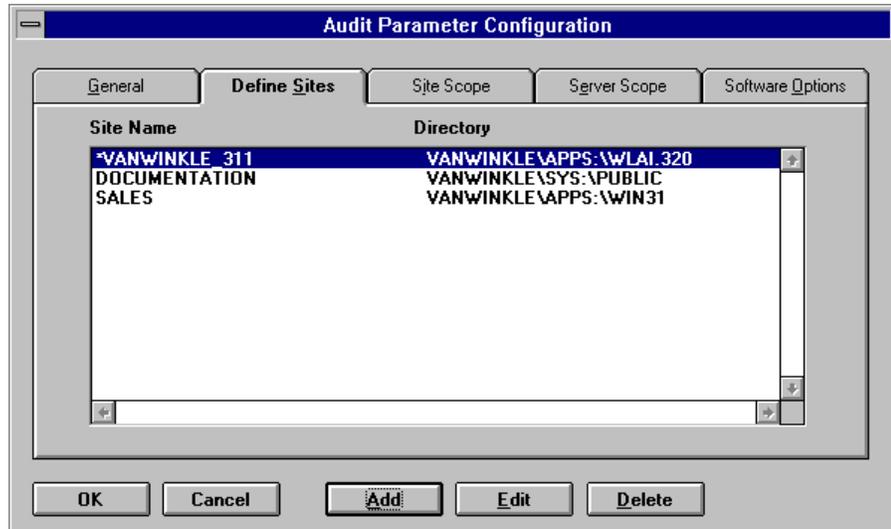
Figure 4-3: The Define Sites Property Sheet

This property sheet lists all of the sites that are defined in your LAN Inventory configuration. It also indicates the directory in which the site data is maintained.

NOTE: The Local Site (i.e., the site name defined for the LAI.320 program directory) is indicated with an asterisk. Also note that the local site cannot be deleted.

2. Choose Add.

The Add Site dialog box is displayed.
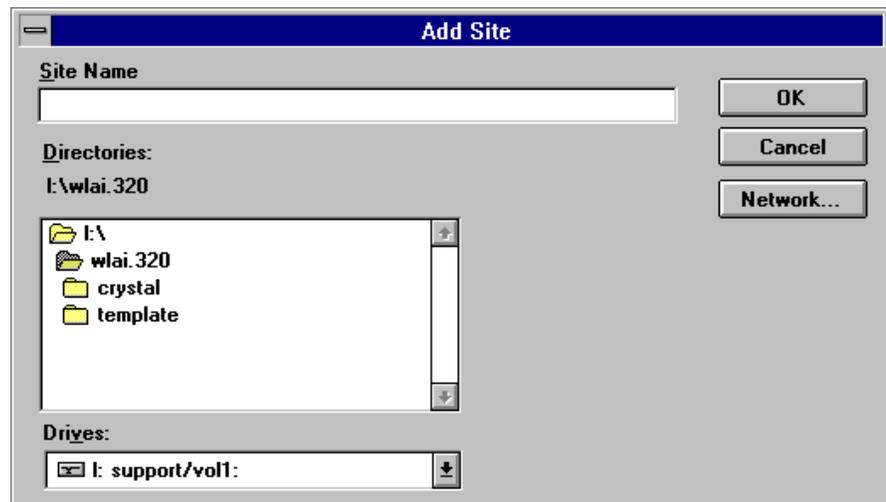
Figure 4-4: Adding a Site

3. Enter the site name in the Site Name text box.

   Site names can contain up to 25 characters (including spaces).

4. Specify the drive and directory combination which identifies the site.

   To define or modify the site's path, click on the entries in the Directories and Drives lists.

   NOTE: The Directories and Drives lists only display the information for the file server volumes and directories to which you are mapped.

5. Choose OK to save the site information and return to the Audit Parameter Configuration dialog box.

   NOTE: Sites are not included in LAN Inventory audits unless they are specified using the Site Scope property sheet. Refer to "Setting the Audit Scope" on page 58 for further information.

The following section describes how to make changes to a site that you have added to LAN Inventory.

Editing a Site Definition

Use the following procedure to change the transaction directory of an existing site from within the Audit Parameter Configuration dialog box.

1. Select the Define Sites property sheet.
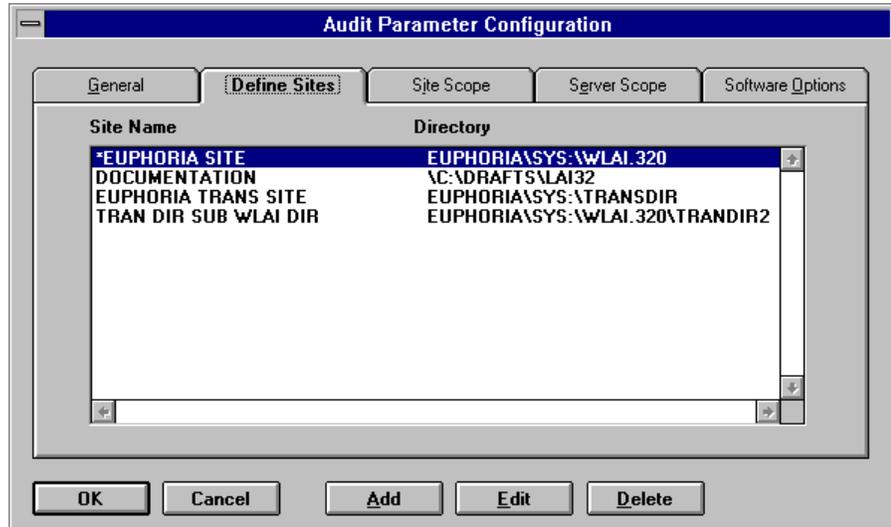
Figure 4-5: The Define Sites Property Sheet

This property sheet lists all of the sites that are defined in your LAN Inventory configuration. It also indicates the directory in which the site data is maintained.

NOTE: The Local Site (i.e., the site name defined for the LAI.320 program directory) is indicated with an asterisk.

2. Choose Edit.

   The Edit Site dialog box is displayed.
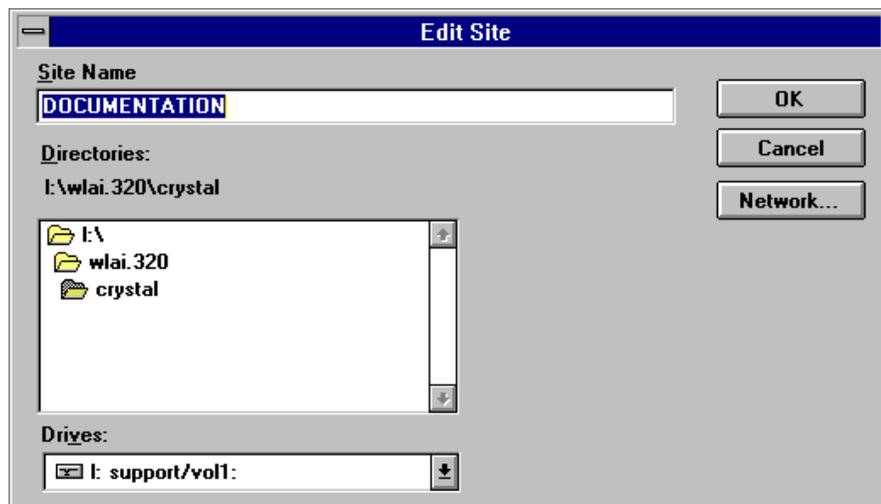
Figure 4-6: Editing an Existing Site

3. Specify the drive and directory combination which identifies the site.

   To define or modify the site's path, click on the entries in the Directories and Drives lists.

   NOTE: The Directories and Drives lists only display the information for the file server volumes and directories to which you are mapped.

4. Choose OK to return to the Audit Parameter Configuration dialog box.

The following section describes how to remove a site from LAN Inventory.

Removing a Site

Use the following procedure to remove a site from LAN Inventory from the Audit Parameter Configuration dialog box.

1. Select the Define Sites property sheet.
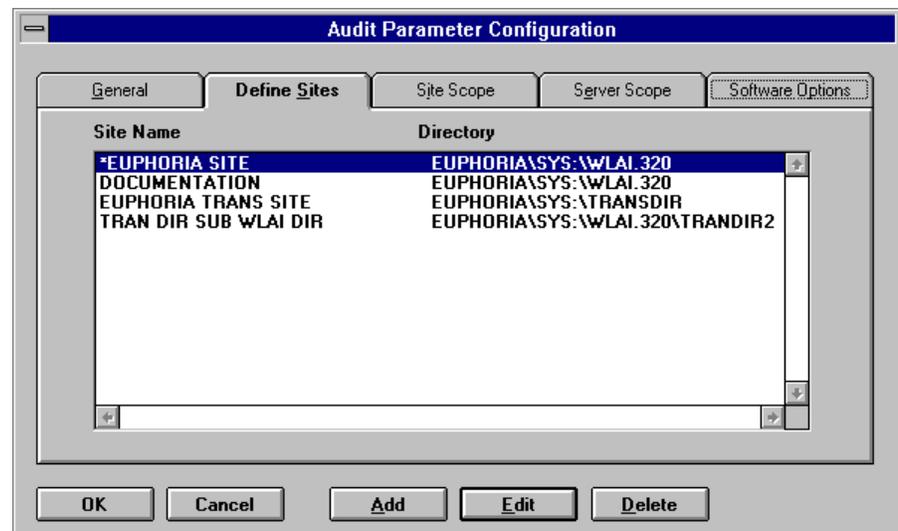
Figure 4-7: The Define Sites Property Sheet

This property sheet lists all of the sites that are defined in your LAN Inventory configuration. It also indicates the directory in which the site data is maintained.

NOTE: The Local Site (i.e., the site name defined for the LAI.320 program directory) is indicated with an asterisk.

2. Select a site from the Define Sites list box.

3. Choose Delete.

A LAN Inventory message box is displayed prompting you to confirm the deletion.

4. Choose Yes to remove the site.

   The site name is removed from the list.

5. Choose OK.

Setting the Audit Scope

The scope of an audit is defined by specifying the sites and file servers to be included in the network audit.

For example, if you administer a network on which you have defined two sites, you might want to perform an audit that includes only SITE1's inventory data. (This might be the case if you have not collected the updated inventory data for SITE2.) To do so, you would include only SITE1 in the audit scope, and then run the audit.

Use the following procedure to define which sites to include in the scope of an audit from within the Audit Parameter Configuration dialog box.

1. Select the Site Scope property sheet.
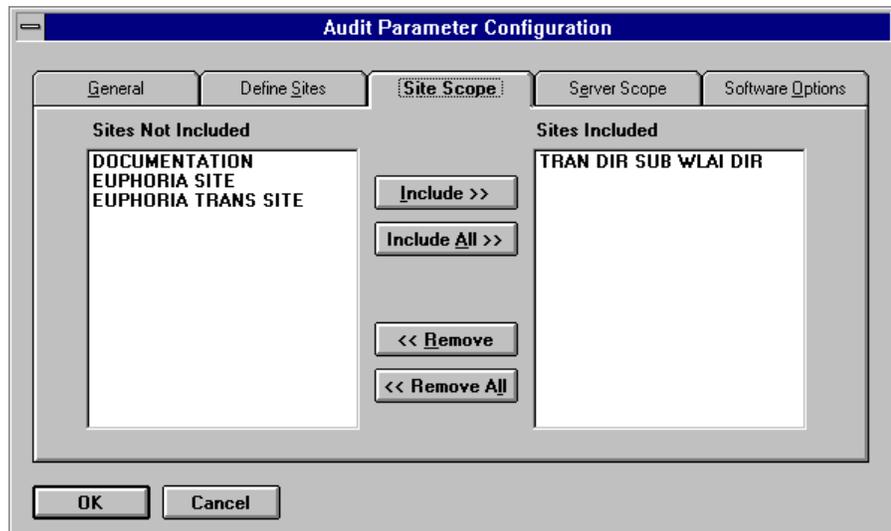
Figure 4-8: Setting the Site Scope

Sites not included in the audit are listed on the left side of the property sheet; sites included in the audit are listed on the right.

2. If you want to add a site, select the desired site from the Sites Not Included list.

3. Choose Include.

    The site is moved to the Sites Included list. Choose Include All to include all those in the Sites Not Included list.

    If you want to remove a site, select the desired site from the Sites Included list box and then choose Remove. To remove all Sites Included, choose Remove All.

    NOTE: In order to gather data from sites that reside on other servers, BROUTER.NLM must be loaded on the server that is performing the audit.

4. Choose OK to save your changes and exit the Audit Parameter Configuration dialog box.

Setting the Server Scope

Just as sites need to be defined in the audit's scope, file servers need to be defined in the server scope. This feature lets you specify which particular servers you wish to include in the network audit, giving you greater control over the inventory collection process.

Use the following procedure to define which file servers to include in the scope of an audit from within the Audit Parameter Configuration dialog box.

1. Select the Server Scope property sheet.
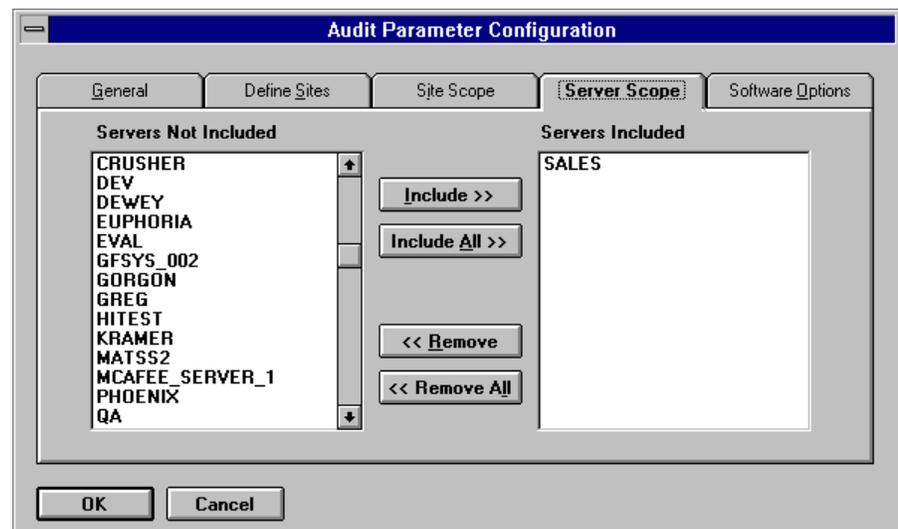
Figure 4-9: Setting the Server Scope

2. If you want to add a file server, select the desired server from the Servers Not Included list.

    Fileservers not included in the audit scope are listed in the Servers Not Included list; fileservers included are in the Servers Included list.

3. Choose Include.

    The server is moved to the Servers Included list. Choose Include All to include all those in the Servers Not Included list.

    If you want to remove a server, select the desired site from the Servers Included list box and then choose Remove. To remove all Servers Included, choose Remove All.

4. Choose OK to save your changes and exit the Audit Parameter Configuration dialog box.

    NOTE: When including file servers in the audit scope, a Server dialog box is displayed prompting you to enter your login name and password. Enter a login name which has supervisor or equivalent rights. Press the Tab key to move to the Password field, and enter your password.

Setting the Audit Software Options

The software identified during an audit or workstation inventory depends upon the applications listed in the PC and MAC Software Lists, as well as the "software options" that you have defined for the audit.

Setting software options instructs the audit to identify specific files. LAN Inventory gives you control over what software is included in the audit. You can instruct the audit to identify non-system file extensions on file servers or PC workstations, for example, to monitor application-specific software. You can also tag system files for identification.

Any files that have extensions other than those specified will not be identified in an audit. For example, all PC-based files with the extension .EXE and .COM are executable files and, by default, are included in an audit. However, if you also want to include all files having the extension .BAT, you must list the .BAT extension as a software option.

NOTE: Unidentified software is only collected if the "Unknown Files Local Site" options for Fileserver, Workstation and/or Macintosh are selected in the Software Options property sheet. If none of these options are checked, then only the applications listed in the PC or MAC Software Lists are included in the inventory and audit.

File extensions and system files to be audited are specified from the Software Options property sheet shown in Figure 4-10.
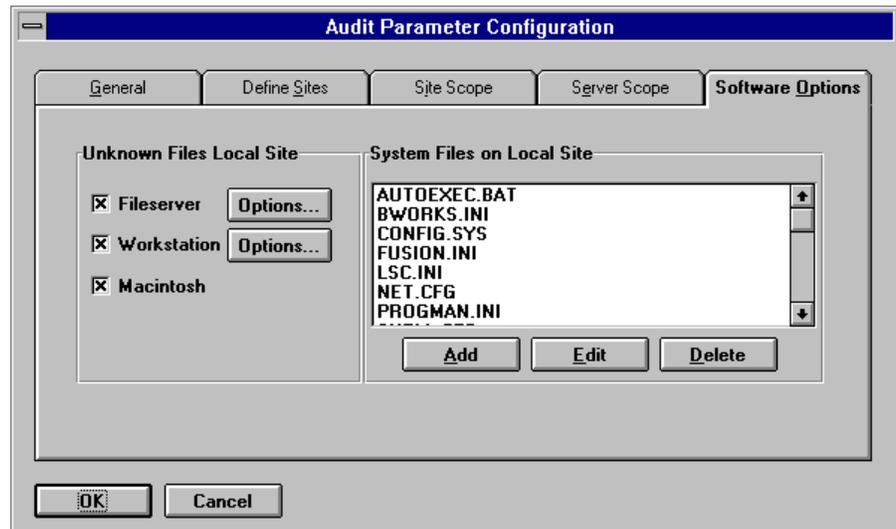
Figure 4-10: The Software Options Property Sheet

The Unknown Files Local Site group box specifies which file extensions LAN Inventory should identify during an audit. The System Files on Local Site group box specifies which system files LAN Inventory should consider for inventory/audit purposes at the local site.

Use the following procedure to identify which file extensions should be audited on your file servers and workstations from within the Audit parameter configuration dialog box.

1. Select the Software Options property sheet.

2. In the Unknown Files Local Site group box, select the appropriate check box(es) depending on where the file(s) will be inventoried: Fileserver, Workstation or Macintosh,.

   NOTE: Selecting Macintosh check box includes all Macintosh applications in the MAC inventory (i.e., those applications that are not listed in the Macintosh Software List). All MAC applications will be included in the equipment inventory and audit.

2. If you selected Fileserver or Workstation, choose Options.

   The File Extensions to Identify dialog box is displayed.
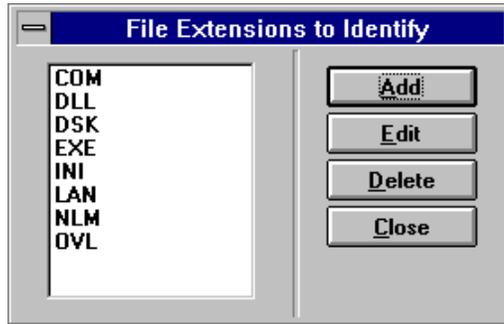
Figure 4-11: A List of File Extensions to Identify

3.   To add another file extension, choose Add.

     The Add File Extension dialog box is displayed.
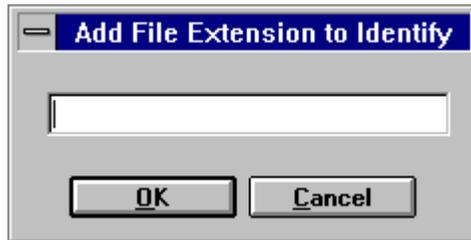
Figure 4-12: Adding File Extensions

     In the text box, enter the file extension to be inventoried/audited (e.g., BAT or INI), and choose OK to save the new extension.

4.   To edit a non-system file extension, select the desired file extension in the File Extensions to Identify dialog box and choose Edit.

     The Edit File Extension to Identify dialog box is displayed.
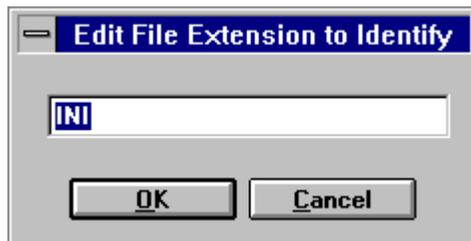
Figure 4-13: Editing a File Extension

     Make the desired changes and choose OK.

5.   To remove a file extension File Extensions to Identify dialog box, choose Delete.

A LAN Inventory message box is displayed prompting you to confirm the deletion. Choose Yes to delete.

Use the following procedure to identify which system files should be audited on your file servers and workstations from the Software Options property sheet.

NOTE: Only those system files that are in the path will be collected.

---

1. To add a system file to the audit consideration, choose Add.

    The Add System File to Inventory dialog box is displayed.
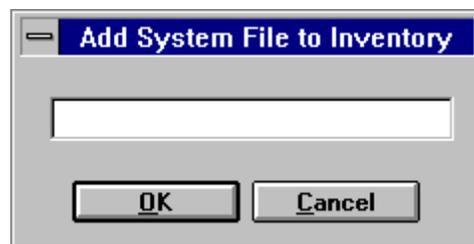
Figure 4-14: Adding System Files

In the text box, enter only the name (not the path) of the system file you want to add, and choose OK to save and exit the dialog box.

2. To edit a local system file, select the desired system file from the System Files on Local Site list and choose Edit.

    The Edit System File to Inventory dialog box is displayed.
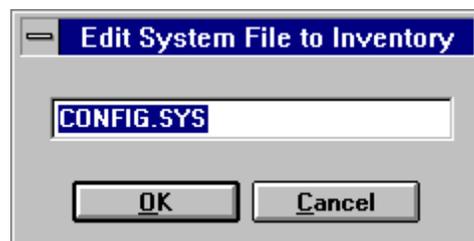
Figure 4-15: Editing System Files

Change the file name and choose OK to save your change and exit the dialog box.

3. To delete a local system file, select the desired system file from the System Files on Local Site list and choose Delete.

    A LAN Inventory message box is displayed prompting you to confirm the deletion. Choose Yes to delete.

Alerting Set-up and Administration

You can configure LAN Inventory to alert you automatically of inventory changes that are detected during an audit.

An "alert" consists of one or more change criteria for which you want to be notified, the method of notification and the alert schedule. Therefore, the following three steps are required to define an alert:

1. Define the changes for which you want to be alerted. For example, you might want to be notified if a new node has been detected during the audit or if a system file has been deleted.

2. Select the method of notification. Notification of the changes in inventory can be made via numeric pager, MHS message, cc:Mail message, NetWare broadcast message or a special program.

3. Set the alert schedule. Alerting can be performed in one of several intervals. For example, you might want to be notified of the changes in inventory only once per month, or you might want to be notified once per hour.

NOTE: When all three of the above steps above are performed to set the alert, a Timer icon displays in the LAN Inventory application window. For more information on the LAN Inventory Timer icon, refer to "The Audit Timer" on page 71.

Defining Alerting Criteria

Use the following procedure to define those inventory changes to which you want to be alerted.

1. Choose Configure | Alerting.

   The Alerting Options dialog box is displayed.
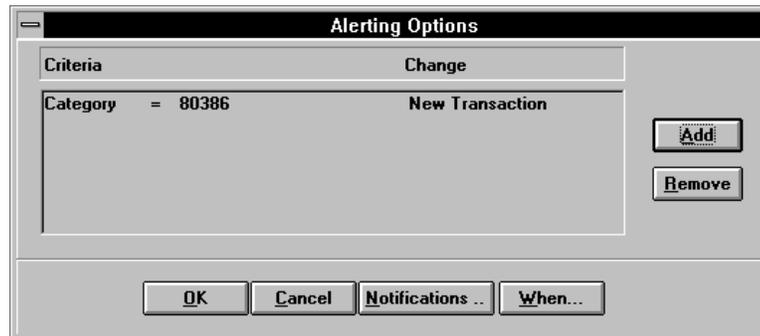
Figure 4-16: Setting the Alert Parameters

NOTE: You can also choose the Alerting tool bar button to display the Alerting Options dialog box.

The first time you establish alert parameters, no values appear in either the Criteria or Change columns. Once you have defined alert parameters, in the Criteria column displays specific classes and descriptions or file names for the alert; and in the Change column displays the reason for the alert. In Figure 4-16 above, an alert will be issued when any new 80386 PCs are detected during a EQUIP.

2. To add an alerting criteria item, choose Add.

   The Alerting Criteria dialog box is displayed.
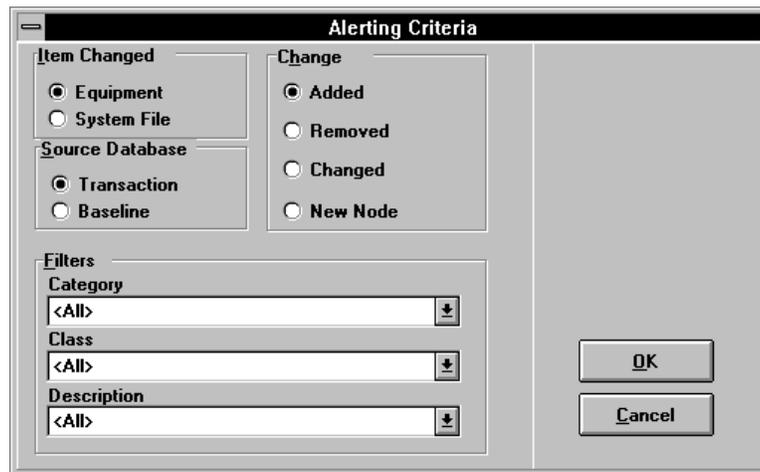
Figure 4-17: Defining the Alert Criteria

3. Select the appropriate radio button in the Item Changed group box to specify which item should be monitored.

You can be alerted to changes in either equipment or system files. For example, if you want to be alerted to additions to the hardware inventory, then select the Equipment radio button. If you want to be alerted to changes to system files, then select the System File radio button.

4. Select the appropriate radio button in the Source Database group box to specify which database should be monitored.

    You can be alerted to changes in either the transaction database (i.e., inventory before the audit) or the baseline database (i.e., inventory after the audit). For example, if you want to be alerted to changes made to the inventory data compiled after an audit, then select the Baseline radio button. If you want to be alerted to changes in the inventory data before the audit is performed, then select the Transaction radio button.

5. Select the Category, Class and/or Description from the drop-down text boxes in the Filters group box to specify which filtered data should be monitored.

    NOTE: When monitoring System Files, filter criteria applies to the system file names. Note that either one specific system file name or <All> system file names that are listed on the Software Options property sheet can be selected for monitoring.

6. Select the appropriate radio button in the Change group box to specify the reason for the alert.

    Select from the following options:

    *   Added

    *   Removed

    *   Changed

    *   New Node

    For example, if you are monitoring Equipment and you want to be alerted of the removal of any 386 PCs, then select Removed. (In this example, 386 would be specified as the Class filter.) If you are monitoring System Files and you want to be alerted of any additions, then Added. If you want to be alerted to any changes made to the inventory, select Changed. If you want to be notified whenever any new nodes are added to the inventory, select New Node.

7. If you want to remove an alerting criteria item, select the desired criteria and choose Remove.

    The specified Criteria/Change line is removed.

    If you have not already done so, you can:

- Choose Notifications to review or change the method by which you want to be notified. Refer to "Setting the Method of Notification" on page 68 for further information.

- Choose When to review or change the notification schedule. Refer to "Setting the Alert Schedule" on page 70 for further information.

8. Choose OK to save your changes and exit the Alerting Criteria dialog box.

Setting the Notification Method

Use the following procedure to select the method by which you want to be notified of inventory/audit changes from within the Alerting Options dialog box.

1. Choose Notifications.

    The Notification Options dialog box is displayed.
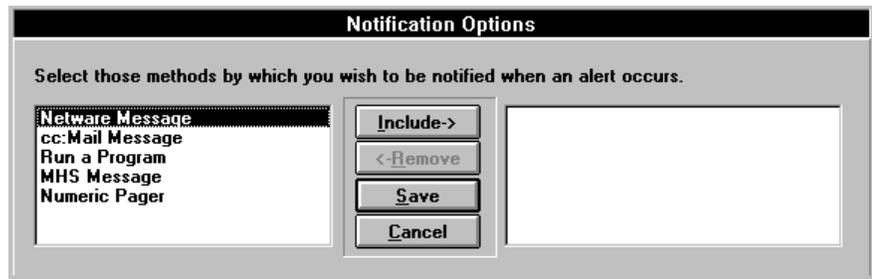
Figure 4-18: Setting the Method of Notification

The *selected* methods of notification display on the right side of the dialog box; the *excluded* methods of notification display on the left side of the dialog box.

2. Select the desired notification method.

3. Choose Include.

    A dialog box is displayed allowing you to enter details regarding the method you selected. For example, if you choose the cc:Mail Message option as the method of notification, a dialog box is displayed prompting you to specify your cc:Mail name and password, as well as the user name or group name to whom you want to send the message.

The following table lists all the dialog boxes and the information required for each of the notification options.

Option	Dialog Box	Procedure
NetWare Message	Network Broadcast Recipients	Select a Server and Login Name from the drop-down list associated with each field.
cc:Mail Message	cc:Mail	Enter your cc:Mail user name in the From field and your cc:Mail Password; enter the Mail Drive Letter and cc:Mail user name of the person or group to receive the notification.
Run a Program	Run a Program	Enter the name of the program that you want to run on an alert. The program must be a DOS or Windows .EXE, .COM or .BAT file and must be in your current path.
MHS Message	MHS Mail Notification	Enter the MHS Mail Drive, the MHS user name in the From field and the associated Host; enter the MHS user name of the person to receive the notification in the To field and the associated Host; enter the Application and Routing Information.
Numeric Pager	Pager Settings	Enter the Name of the person to be paged, their Phone Number, Baud Rate, Port and Delay criteria.

4. Enter details associated with the selected method of notification, and choose OK.

   Upon choosing OK, you are returned to the Notification Options dialog box, and the selected method moves from the left side of the dialog box to the right side.

   NOTE: To remove a method of notification, click on the method listed in the right side of the dialog box, and choose Remove. Your selection moves from the right side of the dialog box to the left side.

5. Choose Save to save your changes and return to the Alerting Options dialog box.

Setting the Alert Schedule

Use the following procedure to define the frequency of notification from the Alerting Options dialog box.

1. Choose When.

   The Alert Scheduling dialog box is displayed.
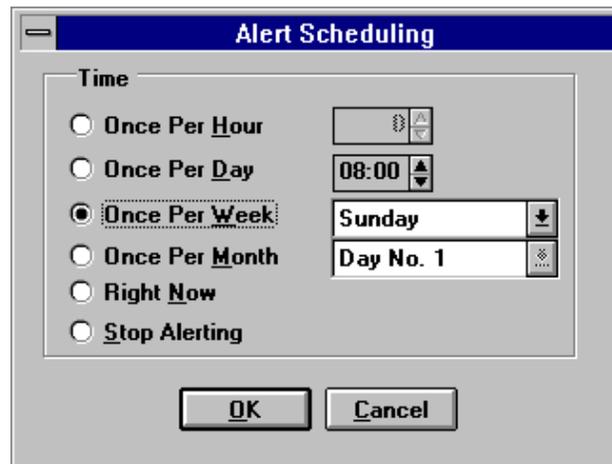
Figure 4-19: Setting the Alert Schedule

2. Select the appropriate radio button to define the notification schedule.

   Choose from the following options:

   - Once Per Hour

   - Once Per Day

   - Once Per Week

   - Once Per Month

   - Right Now

   - Stop Alerting

   For example, to be notified of the inventory changes on a weekly basis, select Once Per Week.

   If you choose Once Per Hour, Once Per Day, Once Per Week or Once Per Month, you must specify the exact time of day and/or the number of the day on which you want to be notified. For example, if you want to be notified once per month, you must specify on which day of the month you want to be notified, as

well as specify at what time of day (e.g., Day No. 1 at 10:00 AM to be notified at 10:00 AM on the first day of each month).

To be notified immediately, select Right Now. To stop notification via electronic communications, select Stop Alerting.

3. Choose OK to save the alert schedule and return to the Alerting Options dialog box.

The Audit Timer

When an alert has been set, a Timer icon displays in the LAN Inventory application window.

Figure 4-20: The Timer Icon

NOTE: Only one alert can be defined at any time; however, the alert can consist of multiple change criteria (e.g., the alert might be triggered if a system file has changed, a node has been added or equipment has been removed).

Use the following procedure to view the timers that have been set.

1. Double click on the Timer icon.

The Active Timers dialog box is displayed
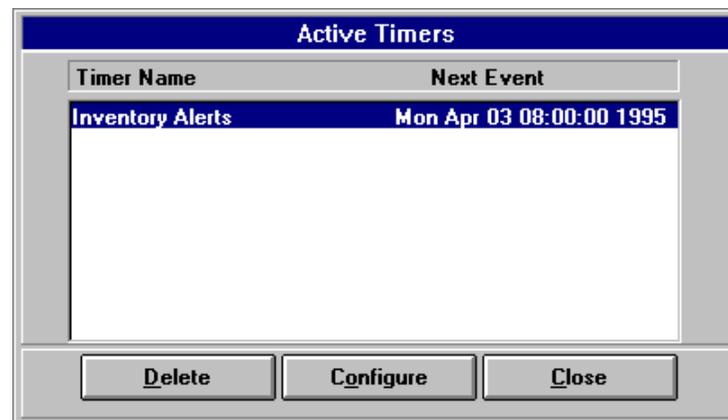
Figure 4-21: A List of Active Timers

The Active Timers dialog box lists the Timer Name and indicates the next time an "event" (i.e., alert) should occur.

2. To delete a timed event, select the event to be deleted and choose Delete.

3. To modify the configuration of an event, select the event and choose Configure.

   If the selected event is an alert, then the Alerting Options dialog box is displayed. Modify the information, and choose OK to return to the Active Timers dialog box.

4. Choose Close to close the Active Timers dialog box.

Qualification List Set-up and Administration

The inventory databases provided with LAN Inventory are referred to as "qualification lists." As you collect inventory and perform audits, LAN Inventory maintains your inventory information in several categorized databases, granting you easy access to the information. LAN Inventory automatically updates and maintains the qualification lists; you can, however, customize the data to reflect your network environment.

Database Descriptions

This section describes the contents of the LAN Inventory qualification lists. Note that not all of the lists are populated with information upon installation. For example, there are no records in the Components and Models lists until you perform an audit.

Categories Database

A Category is the broadest classification of network equipment, identifying hardware and software for PCs, MACs, Fileservers and Fax Servers. Examples of records in this database are File Server Hardware, File Server Software and PC Hardware. One 30-character field defines a category record.

Classes Database

Classes provide further definitions for the Category and Type records. They include the individual components and add-ons which make up a category or a type (e.g., Base Memory, Keyboard, Monitor, Ports).

Components Database

The Components database gathers information from several other database records to develop a complete record for a specific hardware component or software item. The key fields which must be specified when adding or editing a component record are:

- Category

- Class

- Manufacturer

- Product Name

Secondary/optional component record fields are:

- Model

- Vendor

- Maintenance Vendor

- Contract Type

- Warranty Information (start date and length of warranty)

All fields of a component record can be selected from drop-down lists, with the exception of Product Name, which must be manually entered.

Contract Types Database

The Contract Types database defines the generic types of contracts that are in effect within your company. For example, you can specify a contract type as the period of time a contract is in effect (e.g., Two Years) or as a specific type of contract (e.g., Maintenance Only). One ten-character field defines a contract type record.

Departments Database

Departments can be defined as:

- An individual organization or group in your company (e.g., Sales, Finance, or Customer Service).

- A line of business or profit center (e.g., retail operations or some product-specific definition.)

- Any logical grouping of people in your company (e.g., MIS-Southwest Operations and MIS-Western Operations.)

Departments are used to identify the hardware and software in specific areas during an inventory/audit. One 30-character field defines a Department record.

Locations Database

The Locations database contains a name for each site and/or physical location at which inventories are performed. Examples include Lab, Shipping or Accounting. One 25-character field defines a locations record.

MAC Software List Database

The MAC Software database provided with LAN Inventory contains a list of popular Macintosh software applications. The software detected by MACEQUIP during an inventory is compared against this list. Each application record includes a Product Name (49 characters), File Creator (4 characters) and Version (9 characters). A sub-set of this database that can be viewed when editing a record contains fields for File Size (7 characters), Manufacturer Name (selected from the Manufacturers database) and Category (an optional field selected from the Software Categories database). You have the option of sorting this database for display in File Name order or Product Name order.

Many applications require more than one executable file to run the software. To accommodate this and reduce the number of files listed in the software databases, LAN Inventory lets you mark a particular file to be considered as the key or identifying component of a software package. The package identifier is based on the package name, file size and version number.

Manufacturers Database

The Manufacturers database contains the names of companies that produce equipment and products or provide services (e.g., McAfee, Inc., Microsoft). A sub-set of this database allows addresses, phone, and FAX numbers of each manufacturer to be captured. One 30-character field defines a Manufacturers record.

Models Database

The Models database contains records for each model used in your network (e.g., Compaq 386, PS2). One 25-character field defines a Models record.

Names Database

The Names database contains a record for each network user. One 48-character field defines a user name record.

PC Software List Database

The PC Software database provided with LAN Inventory contains a list of popular PC software applications. The software detected by EQUIP during an inventory is compared against this list. Each application record includes a File Name (12 characters), Product Name (49 characters), Version (9 characters). A sub-set of this database that can be viewed when editing a record includes fields for File Size (9 characters) and Manufacturer Name (selected from the Manufacturers database). You have the option of sorting this database for display in File Name order or Product Name order.

Many applications require more than one executable file to run the software. To accommodate this and reduce the number of files listed in the software databases, LAN Inventory lets you mark a particular file to be considered as the key or identifying component of a software package. A package identifier is based on the package name, file size and version number, and it is marked as the "identifier" by choosing the Hide/Toggle button to hide all the other supporting files (i.e., the identifier is the only file that *is not* hidden).

Software Categories Database

The Software Categories database classifies various types of software according to their general purpose. Several Software Categories database records are provided with LAN Inventory (e.g., games, spreadsheets, word processors). Additional records can be added and existing records can be modified.

Types Database

The Types database identifies specific machine types (e.g., File Server, Workstation, MAC, and Spare Parts). One 30-character field defines a types record.

Viewing Qualification Lists

Use the following procedure to view the contents of a qualification list.

1. Choose Configure | Qualification Lists.

    You can choose from the following databases:

    - Categories

    - Classes

    - Components

    - Contract Types

- Departments

- Locations

- Macintosh Software List

- Manufacturers

- Models

- Names

- PC Software List

- Software Categories

- Types

Refer to the previous section for a description of each of these databases.

2. Choose the database you want to access.

    A dialog box for the selected option displays the records of the selected database. To review all database records, use the arrow buttons to scroll through the list.

    At this point, the database information can be modified. Refer to the procedure below entitled "Modifying Qualification Records."

3. Choose Close to exit the database.

Modifying Qualification Records

You can customize the inventory database information provided with LAN Inventory to apply specifically to your network environment. For example, you might want to maintain a list of the hardware manufacturers who supply your network equipment. In addition to the Manufacturers determined by the LAN Inventory collection programs (i.e., EQUIP, SA_EQUIP or MACEQUIP), you might want to list and track another manufacturer.

Use the following procedure to modify a database record.

1. Choose Configure | Qualification Lists.

2. Choose the database you want to modify.

    The records of the selected database display.

3. Modify the database record information.

    The modifications that can be made to a record depend on the selected database. As mentioned above, many database records provided with LAN Inventory cannot be edited or deleted.

Possible modifications are described in the following steps:

4. To add a new record, choose Add.

   An Add dialog box is displayed prompting you to specify required information about the new record.

   Enter the information, and choose OK. The new record is added to the qualification list.

5. To edit an existing record, select the record from the list and choose Edit.

   An Edit dialog box is displayed with the selected record's information.

   Make the desired changes to the information, and choose OK. The record's information is updated.

6. To delete an existing record, select the record from the list and choose Delete.

   A LAN Inventory dialog box is displayed prompting you to confirm the deletion.

   Choose Yes to delete the record.

7. To print all records in the database, choose Print.

   The entire database is sent to the printer as defined by your current print parameters.

8. To deselect records in the MAC and PC Software Lists choose Unmark.

   A record is highlighted or selected by clicking on the record entry. Multiple records can be selected by clicking on them one at a time.

9. To change the sorting order for the MAC and PC Software Lists, choose Sort.

   A dialog box is displayed listing the available sort options. Select a sort order, and choose OK. The records are sorted and displayed according to the selected method.

10. To keep certain records in the MAC and PC Software Lists hidden from the software inventory list while performing an audit, select the records and choose the Hide button.

    A checkmark displays next to all hidden records. The hide action works as a toggle (e.g., if a hidden record is selected when Hide/Toggle is chosen, the record will be unhidden). Multiple records can be selected by clicking on them one at a time.

    Hidden records can be viewed in the database list; however, they will not appear in an inventory list.

> **NOTES:** a - Many Macintosh applications consist of only one file; therefore, be careful when hiding files in the MAC Software List.
>
> b - To hide a file from inventory, the file must be hidden before EQUIP is run on a machine which has the file. Once a file is detected by EQUIP, the file is recorded in inventory upon running an audit. If it is subsequently hidden, the file will be considered as "missing" after the next audit is performed.

11. Choose Close to exit the database dialog box.

Baseline Inventory Import

About the Baseline Inventory

The baseline inventory is the equipment inventory database that is updated each time an audit is performed. This database is an accumulation of the most currently audited inventory information.

LAN Inventory collection programs (EQUIP, SA_EQUIP, MACEQUIP) place the collected hardware and software data in "transaction files." The audit process compiles the transaction files and compares the most recently collected equipment inventory information against the current baseline. As a result, a new updated baseline inventory database is created.

The baseline is made up of equipment inventory records which contain data specific to each type of equipment, as identified in the Types qualification list. The equipment inventory records maintain data such as: manufacturer, network address, memory, software applications and storage. During an audit, information is gathered from the LAN Inventory qualification lists and the equipment inventory. The data that is audited depends on the audit parameters that are defined during the audit set-up (e.g., scope, software options). A baseline may even include inventory data from stand-alone PCs and MACs, provided that the stand-alone inventory data is loaded into the transaction inventory before the audit is performed.

This section discusses the procedures that can be performed with the baseline inventory data. These procedures include:

- Importing baseline-type files into LAN Inventory from other applications.

- Removing inventory data for a specific site from the baseline.

Importing a Baseline Inventory File

Use the following procedure to import baseline inventory data into LAN Inventory. The imported data is added directly into your current baseline inventory file.

1. Choose File | Import Inventory Baseline.

    The Open File to Import dialog box is displayed.
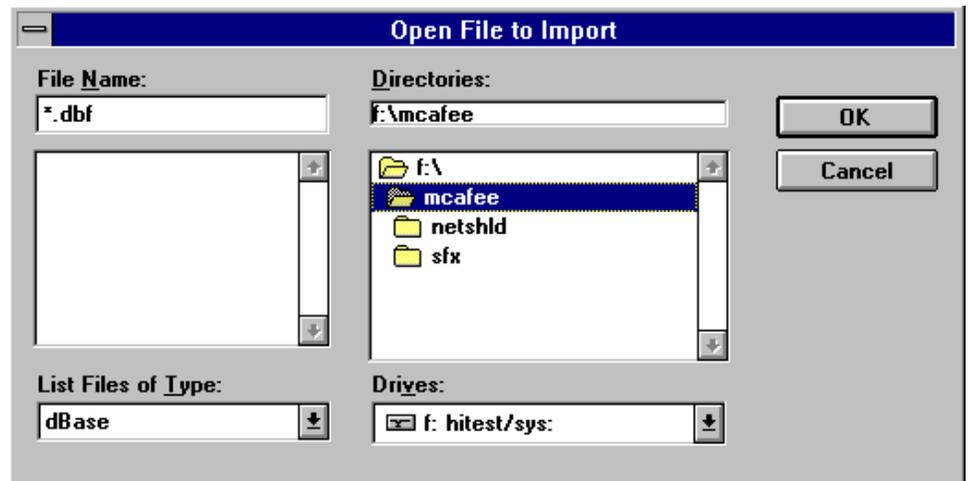
Figure 4-22: Specifying an Import File Name and Format

2. Specify the imported file name and file format.

    If you know the name of the file to be imported, enter the full path name into the File Name field. You can search for the full path name by clicking on entries in the Directories and Drives lists.

    Click on the down arrow button to the right of the List File as Type field to display a list of formats. Select the format in which the import file is configured.

3. Choose OK to continue.

    The Import File dialog box is displayed.
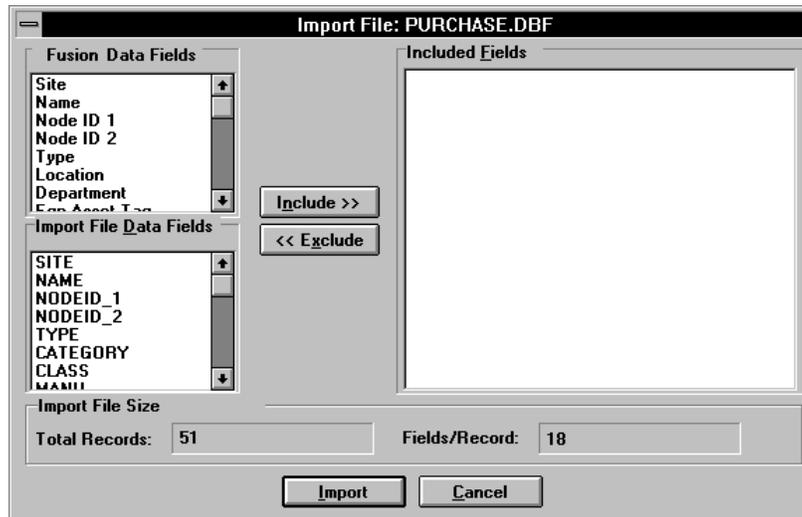
Figure 4-23: Defining the Structure of the Import File

- The Inventory Data Fields list contains every data field in a LAN Inventory baseline record.

- The Import File Data Fields list contains every data field in a record in your import file.

- The Included Fields list identifies the relationship between the LAN Inventory Baseline fields and those from the Import File.

The total number of records in the import file and the number of data fields per import file record are shown at the bottom of the dialog box.

From this dialog box, you can define the field-to-field relationships between the import file and the baseline inventory file.

4. Select the desired data field from the LAN Inventory Data Fields group box.

5. Choose Include.

6. Select the data field from the Import File Data Fields group box which corresponds to the selected LAN Inventory field.

7. Repeat steps 4-6 for each applicable field to build the LAN Inventory baseline record.

The selected fields appear in the Included Fields list box. LAN Inventory data fields are shown in lower case letters. Import data fields are shown in capital letters.

For example, if your import file has a field called LOC which is equivalent to LAN Inventory's SITE field, the Included Fields entry appears as:

```
SITE   = > LOC
```

NOTES: a - Relationships must be defined for the Site, Name, Node ID1, Node ID2 and Type fields.

b - Imported Site names must be unique.

c - The imported file data fields must be accurately matched to the LAN Inventory data fields to avoid misplacing the data in the baseline file.

---

5. Choose Import to begin the import process.

   The import status screen is displayed. A status bar shows the progress of the import. When the import is complete, the status screen is closed.

Removing a Site from the Baseline Inventory

Removing a site's data from the baseline inventory might be necessary if you no longer require an inventory of the site's equipment.

Use the following procedure to remove a site from the baseline—use this procedure with caution as all equipment inventory records for the selected sites are removed from the baseline. You should retain a backup version of the baseline prior to purging the equipment inventory for certain sites. (The procedures for creating a baseline backup are discussed in "Setting the Audit Parameters" on page 52.)

NOTE: The baseline for your Local Site (as identified during the LAN Inventory installation) can be purged. The Purge command removes the selected site data from the baseline files only. All site data, except that which was manually entered, remains in the transaction files. Therefore, if you perform an audit after purging the baseline, the data will be restored. To exclude the site from future audits, you must remove the site from the audit scope and delete the site nodes from inventory (i.e., from the Inventory dialog box).

---

1. Choose File | Purge Inventory Baseline.

   The Purge Site from Baseline dialog box is displayed, listing all sites defined for your LAN Inventory environment.
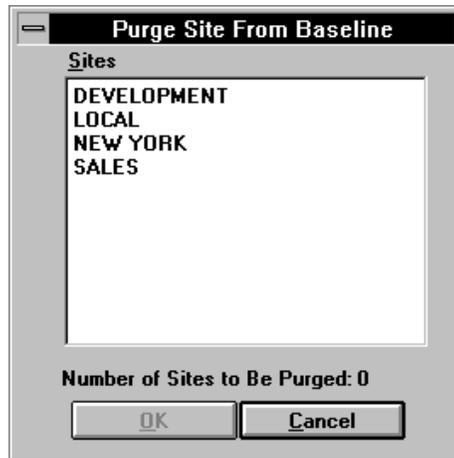
Figure 4-24: Selecting a Site to Purge

2. Select the site(s) you want to remove from the baseline inventory.

    The Number of Sites to Be Purged field increases as sites are selected.

3. Choose OK.

    A LAN Inventory dialog box is displayed prompting you to confirm the deletion.

Choose Yes to purge the equipment inventory records for the selected sites.

Chapter 5 Collecting Inventory

Chapter 4 discussed the inventory set-up and administrative procedures. This chapter describes how to collect inventory information from both networked and stand-alone PCs and MACs.

Introduction

Equipment inventories are performed using the following LAN Inventory collection programs.

Program	Description
EQUIP.EXE	Used for collecting the inventory on networked PC workstations
SA_EQUIP.EXE	Used for collecting the inventory on stand-alone PC workstations
MACEQUIP	Used for collecting the inventory on networked and stand-alone MAC workstations

NOTE: File server inventory can be automatically collected during the audit process by selecting the 'Fileserver Software/Hardware' options in the Audit Parameter Configuration dialog box. Refer to "Setting the Audit Software Options" in Chapter 4.

Automating Inventory Collection

The equipment inventory process can be automated for your networked PC workstations by placing the EQUIP command in the system login script. Refer to "Placing EQUIP in the Login Script" in Chapter 3 for an example.

For networked users, each time the workstation is logged in to the network, the EQUIP inventory collection process is invoked. Depending on the EQUIP command line switches defined in the login script, the workstation user can be notified of the inventory progress as it occurs. The login process can continue after the inventory is complete. A LAN Inventory transaction file is updated with the date and hardware or

software changes that have occurred since the last time an inventory was performed for the workstation.

NOTE: The inventory collection process cannot be automated for stand-alone PCs and MACs. For these configurations, the equipment inventory is stored on diskettes. The collected data must then be added to your network inventory data. These procedures are detailed in this chapter.

EQUIP Command Line Reference

The EQUIP program is used to collect the hardware and software inventory of networked PC workstations. The program is executed at the machine for which you want to perform the inventory.

The EQUIP program's syntax is as follows:

```
EQUIP [drive:\path] /[options]
```

in which *drive:\path* is an optional parameter which indicates the path to the inventory data files and */options* indicates the scan parameters which are always preceded by the slash (/) character. The brackets are not typed. One or more options can be used on the EQUIP command line.

NOTE: The optional [drive:\path] parameter is used to execute EQUIP from within a "transaction directory." A transaction directory contains the EQUIP program executable and the LAN Inventory transaction files. It is used to collect and maintain inventory data for a site other than the local LAN Inventory site. (For more information on transaction directories, refer to "Establishing a Separate Transaction Directory" in Chapter 3.

The following command illustrates EQUIP execution:

```
F:\USER\JOE>EQUIP J:\SALES /SHOW /S
```

where *F:\USER\JOE>* is the directory on the file server from which Joe is issuing the EQUIP command; *J:\SALES* is the directory in which the SALES site inventory data is maintained (several LAN Inventory files are also located here); */SHOW* is the EQUIP switch which specifies that the collected inventory be displayed on the screen; and */S* is the EQUIP switch which specifies that software inventory be collected.

NOTES: a - Because LAN Inventory uses the Novell Btrieve Record Manager for database management, BTRIEVE or BREQUEST must be loaded before EQUIP is executed. Refer to "Improving LAN Inventory's Database Performance" in Chapter 3.

b - When running the Brequestor, BSPXCOM must also be loaded on the file server. For details on loading these programs, refer to your Novell documentation**.**

The following chart lists and describes each EQUIP command line option.

OPTION	DEFAULT	DESCRIPTION
[drive:\path]	current directory	Optional parameter which represents the path to a transaction directory (a directory other than the LAI.320 program directory which contains the EQUIP executable and several required LAN Inventory files).
/NOSHOW		Does not display the inventory on screen as the collection process occurs.
/Z		Displays what is happening at a workstation so that it does not appear hung when EQUIP is executing.
/SHOW		Displays the inventory on screen as the collection process occurs.
/COMPAQ		Changes the asset tag for a Compaq machine.
/E[=unique workstation ID]		Deletes/erases a node's inventory data from the LAN Inventory transaction files.
/S		Collects software inventory.
/H	✓	Collects hardware inventory.
/Y	✓	Collects system file inventory.
/O		Collects department name.
/L		Collects location.
/T		Collects asset tag.
/V		Views hardware inventory only; does not update the transaction files.
/D		Runs EQUIP daily.
/W		Runs EQUIP weekly.
/B		Runs EQUIP biweekly.
/M		Runs EQUIP monthly.

/Q	Runs EQUIP quarterly.
/P	Runs EQUIP annually.
/U[=user name]	Logs the user name or text string to be associated with the node. (This switch is only valid the first time EQUIP is run at a node.)

More than one collection option can be specified on the EQUIP command line.   For example, the following command executes EQUIP from the current directory and scans for software, hardware and system file inventory.

```
EQUIP /S /H /Y
```

When the EQUIP command is issued without parameters, the program will default to a hardware and system file scan using the current directory. Further, the collected inventory will not display (i.e., /NOSHOW mode).

The following sections explain each of the EQUIP command line options.

[drive:\path]

The [drive:\path] parameter tells EQUIP which directory to execute from to update the LAN Inventory data files maintained in the specified directory. This parameter is optional, and it can be used in any of the following three ways:

- If no drive letter or path is specified on the EQUIP command line, then the current directory is used.

- If only a drive letter is used (e.g., F:), then the current directory for that drive is used.

- If the full path is specified, then the full path is used.

The brackets are not typed.

/NOSHOW

The /NOSHOW option instructs EQUIP not to display the inventory status on screen as it is collected.

NOTE: When the /NOSHOW option is specified, scan parameters must also be provided. For example, the command 'EQUIP /NOSHOW' is invalid. You must use /NOSHOW with either /S, /H or /Y.

/Z

This command switch prevents users from wondering if their workstations are hung during EQUIP execution. The /Z option is used in conjunction with the /NOSHOW switch described in the previous section and is particularly useful when using the weekly, biweekly, monthly, quarterly or annual switches. For example, if an administrator places the following line in the login script:

```
EQUIP /SB /HB /YB /NOSHOW
```

then EQUIP will collect inventory for software, hardware and system files on a biweekly basis only without displaying the process on the screen. In this scenario, when users log in to the network each day, EQUIP will try to run and display the software, hardware and system files not collected. By using /Z, inventory collection information is displayed on screen notifying the user of the inventory's progress. In this way, the workstation will not appear hung.

/SHOW

The /SHOW option instructs EQUIP to display the detected inventory on screen as it is collected.

NOTE: When the /SHOW option is specified, scan parameters must also be provided. For example, the command 'EQUIP /SHOW' is invalid. You must use /NOSHOW with either /S, /H or /Y.

/COMPAQ

This switch allows the user to change the asset tag for Compaq machines (manufactured after 1995). The command line is as follows:

```
EQUIP /COMPAQ
```

/E

The /E option is used to delete/erase all information about a particular network address/unique identifier from the LAN Inventory transaction files. For example:

```
EQUIP /E=2C581ACF:32E1
```

where *[unique workstation ID]* is the identifier of the node to be deleted. Use uppercase for alpha characters. Leading zeros are not required. No ID=this node.

NOTES: a - /SHOW is the only EQUIP command line option with which the /E switch can be used.

b - If the workstation ID to be deleted is the same node from which EQUIP is executed, then the [unique workstation ID] specification is not required. In this case, simply enter: EQUIP /E.

c - The unique workstation ID can be determined by running EQUIP with the /V option to view the hardware inventory. Refer to the /V option discussion below. It also can be viewed in the Inventory spreadsheet.

If you use the EQUIP /E option and then run an audit, all information about the deleted workstation ID will be removed from the equipment files and are reported as "missing." If you use the EQUIP /E option and then *delete the workstation ID from the Inventory dialog box before running an audit*, the workstation ID will be completely removed from the inventory (i.e., not even considered as missing after the next audit).

/S

The /S option instructs EQUIP to scan for all software applications stored on the workstation's local hard drive(s). EQUIP searches for file names that are listed in the PC Software qualification list (i.e., the WPCSLIST.DAT file).

Upon finding a file name that *is listed* in LAN Inventory's PC Software List, EQUIP verifies the file size. If the detected file size is identical to the file size listed in the PC Software List, then the item is included in the updated Transaction file.

If EQUIP cannot detect a file name that had previously been detected on the node and is currently listed in the PC Software database, it will *not* include the file name in the updated transaction file. The item will be listed as a missing application in the Inventory Log results.

NOTE: If the 'Workstation' option is checked in LAN Inventory's Software Options dialog box, then the Unidentified PC/Fileserver Software list also will be updated. In this case, upon finding a file name (or corresponding file size) that is not listed in the PC Software list, the file is added to the Unidentified PC/Fileserver Software list.

/H

The /H option instructs EQUIP to scan for all hardware components and network information. Refer to Appendix A for a complete listing of hardware inventory data.

NOTE: EQUIP detects certain items on the basis of the CMOS set-up; therefore, the CMOS set-up on all workstations must be accurate.

/Y

The /Y option instructs EQUIP to scan for the system files that are specified in LAN Inventory's Software Options dialog box. System files generally include the following:

- AUTOEXEC.BAT

- CONFIG.SYS

- WIN.INI

- SYSTEM.INI

To detect the AUTOEXEC.BAT and CONFIG.SYS files, EQUIP scans the root directory on the drive from which the workstation was booted. The boot drive is determined in two ways:

- In DOS 4.0 and above, EQUIP locates the AUTOEXEC.BAT and CONFIG.SYS files from the boot drive.

- In DOS versions prior to 4.0, EQUIP searches the first hard disk that it finds. If there is no hard disk, EQUIP searches for the system files on the first floppy drive it finds.

NOTE: To be detected by EQUIP, all system files must be in the workstations' search path.

/O

The /O option instructs EQUIP to add the department name related to the workstation. This switch must be used in conjunction with /H, /Y, or /S when using EQUIP.

/L

The /L option instructs EQUIP to add for the location related to the workstation ID. This switch must be used in conjunction with /H, /Y, or /S when using EQUIP.

/T

The /T option instructs EQUIP to add the asset tag related to the workstation. If the workstation is a Compaq machine, the Asset Tag field is filled with the asset tag stored in the workstation. If the asset tag is given on the command line, it will be overwritten by the machine's built-in asset tag. This switch must be used in conjunction with /H, /Y, or /S when using EQUIP.

/V

The /V option instructs EQUIP to scan for hardware and network information for viewing purposes only. The detected inventory information *is not* written to a database and does not require Btrieve to be loaded. This option can only be used with a scan for hardware.

The following example instructs EQUIP to perform a scan for hardware and display the results on screen:

```
EQUIP /H /V
```

NOTE: The /V option only scans for hardware and network information. When using /V, you must specify the /H scan parameter. The /V switch will not work with any other switch.

/D, /W, /B, /M, /Q and /P

The /D, /W, /M, /B, /Q and /P options are called "frequency switches." These switches refer to running EQUIP on a daily, weekly, biweekly, monthly, quarterly and annually basis, respectively.

Each switch instructs EQUIP to execute only after an entire cycle. For example, using the /D option, EQUIP will execute only once every 24 hours. In all other cases (i.e., before 24 hours has passed), EQUIP will display the message "No Action

Taken" instead of executing. The /W option causes EQUIP to execute once every 7 days. The /M option causes EQUIP to execute once every month.

Placing the following command in a login script will cause EQUIP to execute monthly and scan for software and hardware:

```
.....
#EQUIP /M /S /H
.....
```

To instruct EQUIP to execute on a particular day, you must use the Novell DAY_OF_WEEK command, as in the following example:

```
.....
IF DAY_OF_WEEK="MONDAY" THEN
MAP Q:=FS1/SYS:APPS\LAI.320
DRIVE Q:
#BREQUEST /D:17000
#EQUIP /H /Y /D
#ENDBTRV
MAP DEL Q:
END
.....
```

NOTES: a - The EQUIP frequency switches are machine specific—the next time EQUIP executes on a machine depends on the last time EQUIP was executed on that machine.

b - If the user does not log in to the server during the specified day, week or month, the next time the user logs in, EQUIP determines how much time elapsed since the last login. EQUIP will execute if the elapsed time is greater than the option cycle.

c - In order to execute at correct cycles, a login script should have only one EQUIP command with frequency switches. The second EQUIP command will never be executed because of the previous EQUIP command (e.g., the cycle for the second command will never occur). For example: MAP INS S16:=C:\.

/U

The /U option allows the LAN Inventory user to pass an alphanumeric string to the inventory transaction files. This option can only be used the first time EQUIP is executed at a workstation. It allows a name other than the login name to be associated with the node.

For example, a Supervisor might enter the following command to log onto Joe's machine and execute EQUIP for the first time:

```
EQUIP /H /Y /S /U=JOE
```

The above command instructs EQUIP to scan for hardware, system files, software and pass the name "Joe" to the inventory transaction files.

This switch must be used in conjunction with /H, /Y, or /S when using EQUIP.

Collecting Networked PC Inventory

The EQUIP program is used to collect the inventory of networked PCs. Upon execution, EQUIP scans the hardware for a unique ID in the root directory. This unique ID is used throughout LAN Inventory as the workstation's identifying key.

NOTES: a - The first time EQUIP is executed at a workstation, EQUIP generates the workstation ID and stores it in a hidden file called LAIID.CFG maintained in the workstation's root directory.

b - The LAIID.CFG file is used to identify a workstation on which EQUIP is executed. If the file has been deleted, EQUIP will create a new LAIID.CFG file and consider the workstation to be a new node. As a result, two entries for the same PC will be listed in the Inventory dialog box. Therefore, to avoid confusion, if the LAIID.CFG file has been deleted, also delete the node's entry in the Inventory dialog box before running EQUIP and auditing the workstation inventory.

As discussed in Chapter 3, "Placing EQUIP in the Login Script," the EQUIP command can be placed in the system login script so that inventory collection is performed automatically each time a user logs into the network.

LAN Inventory also provides two EQUIP batch files which are placed in the LAI.320 program directory upon installation. The batch file names are listed below:

File	Description
EQUIP1.BAT	Loads server-based Btrieve (BREQUEST.EXE), executes EQUIP and then unloads Btrieve.
EQUIP2.BAT	Loads local Btrieve (BTRIEVE.EXE), executes EQUIP and then unloads Btrieve.

Both batch files need to be modified to reflect the correct path and drive combination, as well as to specify the desired scan parameters.

Running EQUIP

Use the following procedure to execute EQUIP from a networked PC.

NOTES: a - To hide a file from inventory, the file must be hidden before EQUIP is run on a machine which has the file. Once a file is detected by EQUIP, the file is recorded in inventory upon running an audit. If it is subsequently hidden, the file will be considered as "missing" after the next audit is performed. Refer to "Modifying Qualification Records" in Chapter 4 for instructions on hiding records in the PC/MAC Software qualification lists.

b - Executing EQUIP on several machines that use the same boot disk might cause the machines' inventory to be incorrectly incorporated into the baseline inventory.

c - Executing EQUIP on a machine that uses more than one boot disk might cause the machine's inventory to appear more than once in the baseline inventory.

1. From the workstation on which you want to perform an inventory, use the DOS CD command to change into the directory containing the EQUIP executable and LAN Inventory database files.

2. Load the Btrieve software.

   Btrieve must be properly configured on the file server from which it is loaded. Btrieve must also be loaded before EQUIP is executed, and it should be unloaded after EQUIP has run. Due to the resulting increase in performance, it is highly recommended that you use Btrieve's server-based program (BREQUEST.EXE).

   To load Brequest, use the LAN Inventory BRQ.BAT file which consists of the following command:

   ```
   BREQUEST /D:17000
   ```

   To load local Btrieve, use the LAN Inventory BTR.BAT file which consists of the following command:

   ```
   BTRIEVE /P:3072 /F:22 /T:BTR.TRN /E
   ```

3. Execute EQUIP.

   For example, to scan for the hardware, software and system file inventory, type:

   ```
   EQUIP /H /S /Y <ENTER>
   ```

   The inventory is collected and placed in the appropriate LAN Inventory transaction files.

4. Unload the Btrieve software.

   To unload the Btrieve software, type:

```
ENDBTRV  <ENTER>
```

NOTES: a - NetWare 3.X, 4.01, 4.02 and 4.1 users need Read, Write, Filescan, Create and Erase rights.

b - Mark the .EXE files as "shareable" and ensure the COMSPEC is set properly.

Collecting Stand-alone PC Inventory

The SA_EQUIP program is used to collect the inventory of stand-alone PCs. The collected data is placed onto "collector diskettes" which are prepared expressly for this purpose.

As with EQUIP, SA_EQUIP scans the hardware for a unique ID in the root directory. This unique ID is used throughout the inventory as the stand-alone machine's identifying key.

NOTE: The first time SA_EQUIP is executed at a stand-alone machine, SA_EQUIP generates the machine's ID and stores it in a hidden file called LAIID.CFG maintained in the root directory.

The steps for including stand-alone PC data in your LAN Inventory baseline inventory include the following:

1. Creating a collector diskette via the LAN Inventory console

2. Running SA_EQUIP at the stand-alone PC

3. Loading the stand-alone data into LAN Inventory

The procedures for each step are described in this section.

Creating a Collector Diskette

Stand-alone PC inventory data collected by SA_EQUIP is placed onto specially prepared diskettes containing the LAN Inventory equipment inventory system files. All inventory for the stand-alone PCs must be placed onto a collector diskette. If the collected inventory data requires more than one diskette, additional collector diskettes must be used.

Use the following procedure to create a collector diskette.

1. Insert a blank formatted diskette into the diskette drive.

   Approximately 300K of disk space is required for the collector diskette files.

2. Choose File | Create Collector Diskette.

The Create Collector Diskette dialog box is displayed.

Figure 5-1: Creating a Collector Diskette

3. In the Drives list, choose the drive into which you inserted the diskette.

   The selected drive letter displays in the Path field. Any directories on the selected drive display in the Directories list.

4. If applicable, select the directory into which you want the equipment inventory files placed.

   The directory and sub-directory (as applicable) display in the Path field.

5. Choose OK to create the collector diskette.

   The SA_EQUIP executable and LAN Inventory equipment inventory files are copied to the specified drive and directory path. As the files are copied, the copy progress displays.

   NOTES: a - All collector diskettes must be created using the above procedure. Collector diskettes created in any other manner (e.g., DOS DISKCOPY) will not work correctly (it will cause duplicate entries in the LAN Inventory database).

   b - All collector diskettes are associated with the main/local LAN Inventory directory site name; therefore, all stand-alone data will be associated with the main LAN Inventory site.

Running SA_EQUIP

The command line syntax for SA_EQUIP is as follows:

```
SA_EQUIP \options
```

SA_EQUIP can be run with the command line switches listed in the table below.

Option	Description
/NOSHOW	Does not display the inventory on screen as the collection process occurs.
/Z	Displays what is happening at a workstation so that it does not appear hung when EQUIP is executing.
/S	Collects software inventory.
/H	Collects hardware inventory.
/Y	Collects system file inventory.
/O	Collects department name.
/L	Collects location.
/T	Collects asset tag.
/D	Runs EQUIP daily.
/W	Runs EQUIP weekly.
/B	Runs EQUIP biweekly.
/M	Runs EQUIP monthly.
/Q	Runs EQUIP quarterly.
/P	Runs EQUIP annually.
/U[=user name]	Logs the user name or text string to be associated with the node. (This switch is only valid the first time EQUIP is run at a node.)

For example, the command line:

```
SA_EQUIP /NOSHOW /H[w] /T
```

would run SA_EQUIP without display, scanning for hardware on a weekly basis and collecting the asset tag of the equipment scanned.

NOTE: For complete descriptions of each command line, refer to "EQUIP Command Line Reference" on page 103.

Use the following procedure to collect the equipment inventory of a stand-alone PC. You must use a prepared collector diskette to which the inventory data will be copied.

NOTE: Executing SA_EQUIP on several machines that use the same boot disk might cause the machines' inventory to be incorrectly incorporated into the baseline inventory. Executing SA_EQUIP on a machine that uses more than one boot disk might cause the machine's inventory to appear more than once in the baseline inventory.

---

1. Insert the collector diskette into the diskette drive of the stand-alone PC.

2. Execute SA_EQUIP from the floppy diskette.

    Issue the SA_EQUIP command by typing:

    ```
    SA_EQUIP <ENTER>
    ```

    If applicable, use the DOS CD command to change into the directory containing the SA_EQUIP executable and LAN Inventory files.

    The LAN Inventory files are activated and the Workstation Information screen displays.

    NOTE: Upon executing SA_EQUIP, if there is insufficient space available on the diskette, SA_EQUIP displays the message "Not enough disk space. Use a new collector disk."

    ---

3. If desired, modify the workstation information.

    The values of the following fields can be modified:

    *   Location - the workstation location (e.g., First Floor)

    *   Department - the department to which the workstation belongs (e.g., Sales)

    *   User - the user name/ID assigned to the workstation

    *   Asset Tag - the tag or identifying number assigned to the machine to be used as another ID for the workstation

    Use the arrow keys to move the cursor into a field, and overtype the existing entry with your new data.

4. Press ENTER to save the workstation information and continue.

    The machine's hardware data is automatically collected, and then the SA_EQUIP menu bar displays across the top of your screen.

    Use the left/right arrow keys to highlight a desired menu. Press ENTER to choose the highlighted menu and display its drop down list of commands. Use the up/down arrow keys to highlight a desired command. Press ENTER to choose the highlighted command.

    The available SA_EQUIP menus and their commands are as follows:

- File Menu

  - System Files - command used to collect the system files that are specified in LAN Inventory's Software Options dialog box.

  - Exit - command used to save the collected data to files on the collector diskette and exit the SA_EQUIP program.

- Hardware Menu

  - Edit Hardware - command used to modify hardware details about the PC (e.g., Model Number, Serial Number, and Component/Asset Tag).

- Software Menu

  - Scan Software - command used to inventory the PC software. When chosen,   a status bar displays showing the progress of the software inventory.

5. To edit the PC hardware inventory, choose Hardware | Edit Hardware.

   The Hardware Components screen displays showing the PC hardware inventory that is compiled automatically upon executing SA_EQUIP.

   Values for the Model Number, Serial Number and Component (Asset) Tag fields can be specified for any of the listed hardware items. To do so, use the up/down arrow keys to highlight the desired item and press ENTER. When the Edit Hardware screen displays, enter or overtype any of the three detail fields.

   Press ENTER two times to save any changes and close the Edit Hardware screen. Press ESC to exit without saving your changes.

   Press ESC to close the Hardware Components screen.

6. To inventory the PC software, choose Software | Scan Software.

   The software inventory is immediately performed. The inventoried software data cannot be edited.

7. To inventory the workstation's system files, choose Files | System Files.

   All system files listed in the LAN Inventory Software Options dialog box (accessible from the Inventory command on the Administration menu) are collected. The system file inventory is immediately performed. The inventoried system file data cannot be edited.

8. To save the inventory data and exit SA_EQUIP, choose File | Exit and choose any key to save the configuration to the collector diskette.

   The inventory data is copied onto the collector diskette. When all inventory data is copied to the diskette, SA_EQUIP is automatically exited. Remove the

collector diskette from the PC. Repeat the procedure for additional stand-alone PCs.

The collected data must now be loaded into LAN Inventory in order for the inventory to be included in the next audit.

NOTES: a - If the collector diskette becomes full when saving the data, the message "Disk out of space. Do collection again." displays. In this case, exit the program and then re-execute SA_EQUIP using a new collector diskette. You must collect the data again.

b - If one collector diskette is used to inventory multiple stand-alone PCs, the information for each additional workstation is appended to the appropriate file.

Loading Stand-alone Data into LAN Inventory

After the stand-alone PC inventory has been gathered using SA_EQUIP, the data must be loaded into LAN Inventory in order for the next audit to include the new inventory.

Using the LAN Inventory console, use the following procedure to load the stand-alone PC inventory data into LAN Inventory.

1.   Insert the collector diskette into the diskette drive.

2.   Choose File | Load Equipment from Collector Diskette.

The Load Equipment From dialog box is displayed.
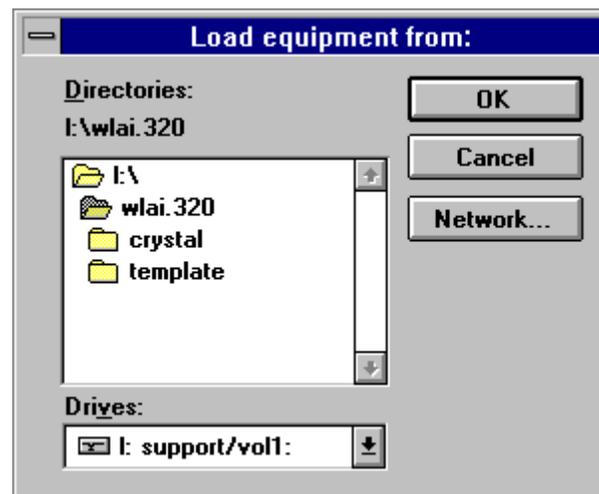
Figure 5-2: Loading Standalone Data

3.   Select the drive and directory containing the stand-alone inventory data.

4. Choose OK to load the stand-alone PC equipment inventory into LAN Inventory.

    A status screen displays the progress as the stand-alone inventory data is copied from the diskette to the equipment inventory files maintained in the LAI.320 program directory.

NOTE: To incorporate the stand-alone data into the LAN Inventory baseline inventory, the audit parameters must be defined to include PC hardware and software before performing the audit. (Refer to the procedures in Chapter 4, "Setting the Audit Software Options" regarding defining audit parameters.)

Collecting Networked MAC Inventory

MACEQUIP is used to collect the inventory of Macintosh computers attached to Novell file servers that are running the MAC VAP/NLM. MACEQUIP is also used to collect the inventory of stand-alone MACs, as is discussed in the next section of this chapter.

LAN Inventory provides two programs for collecting MAC inventory. Both programs are used to collect inventory information on stand-alone and networked Macintosh computers; however, their execution is slightly different:

Program	Description
MACEQUIP 3.1	Performs inventory collection and provides a menu from which you can choose to view the collected inventory and/or close the program.
MACEQUIP AUTOMATIC 3.1	Automatically closes the program when inventory collection is complete.

NOTE: The following discussion uses the term "MACEQUIP" to refer to both MAC programs. When following the procedures, use either the MACEQUIP 3.1 program or the MACEQUIP AUTOMATIC 3.1 program.

Upon execution, MACEQUIP automatically scans the machine's hardware components and the software applications on its hard drive. The hardware and software data is stored in the MACEQUIP.CFG and MACSOFT.LST files, respectively. The collected data is added to the LAN Inventory baseline inventory by running an audit.

For each workstation on which MACEQUIP is executed, a unique ID is created using the Ethernet address. If there is no AppleTalk, the user name is converted to a numeric ID. The network number will be 0000 for all Macintosh's.

NOTE: To run MACEQUIP automatically upon booting up the machine, an alias for MACEQUIP can be placed in the System folder as a Start Up item. Refer to "Collection Stand-alone MAC Inventory" on page 103 for further information.

This section covers the following topics:

- Installing MACEQUIP

- Automating the execution of MACEQUIP

- Running MACEQUIP

Installing MACEQUIP

The following must be in place before continuing with the MACEQUIP installation:

- LAN Inventory must be properly installed according to the instructions outlined in Chapter 2 of this manual.

- Your network file server must support the AppleTalk Filing Protocol (AFP).

- Your network must be running one of the following: NetWare 386 3.11, 3.12, 4.01, 4.02 or 4.1 with the Macintosh NLM; AppleTalk 2.15c or 2.2 Macintosh VAPs.

Use the following procedure to install MACEQUIP. Because MACEQUIP is a Macintosh file, you MUST follow these steps to properly install the program on your network. MACEQUIP should be copied to the same directory where EQUIP and the other LAN Inventory files reside.

1. At a Macintosh workstation, insert the floppy disk containing the MACEQUIP file into the disk drive.

2. Choose the Chooser command from the Apple menu.

3. Select Apple Share.

4. Select the file server on which MACEQUIP should be installed.

5. Mount the selected file server.

6. Close the Chooser.

   An icon is created that reflects the name and volume of the file server. For example:

   MYSERVER.SYS

7. Double click on the File Server icon.

8. Find the LAN Inventory folder.

9. Open the floppy disk icon.

10. Drag the file icon for MACEQUIP from the floppy disk to the LAN Inventory directory on the file server.

    Figure 5-3 illustrates a Macintosh screen while the MACEQUIP files are being copied into the LAN Inventory folder.
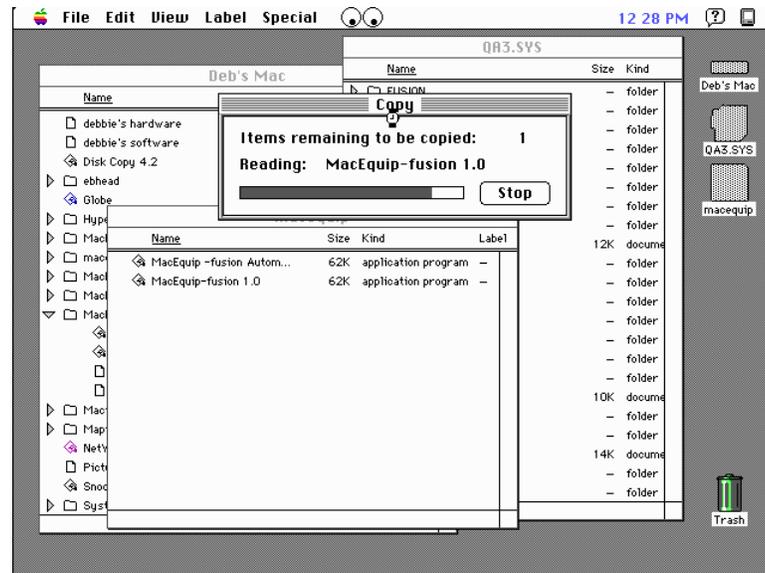
Figure 5-3: Installing MACEQUIP

This completes the MACEQUIP installation process. The MACEQUIP program can now be executed from your network's Macintosh workstations.

Automating MACEQUIP Execution

With System 7.0 or greater, the MACEQUIP program can be a Start Up item and run automatically when the Macintosh starts up. Use the following procedure to set up the automatic equipment inventory.

1. From the Macintosh, choose the Chooser command from the Apple menu.

2. Select Apple Share.

3. Select the file server on which MACEQUIP resides.

4. Mount the selected file server.

5. Close the Chooser.

6. Double click on the File Server icon.

7. Open the folder where MACEQUIP is located and select MACEQUIP.

8. Select the Make Alias command from the File menu to create an alias for MACEQUIP.

9. Drag the alias under MACEQUIP into the Start Up Items folder in the System folder.

Every time the machine is rebooted, the volume will be mounted and
MACEQUIP will run automatically.

NOTE: If you do not have SYSTEM 7.0 or greater, every time you want to use
MACEQUIP, you must go through steps 1-7 above and then run MACEQUIP
by double clicking on the MACEQUIP icon.

Running MACEQUIP

Use the following procedure to manually execute MACEQUIP from a networked
Macintosh workstation.

1. From the workstation on which you want to perform an inventory, change into
    the directory containing the MACEQUIP executable and LAN Inventory
    database files.

2. Launch MACEQUIP.

    The inventory scan is performed, and the MACEQUIP.CFG and
    MACSOFT.LST files are updated to reflect the collected hardware and software
    inventory, respectively.

    Figures 5-4 and 5-5 illustrate MACEQUIP's Hardware Information and
   Software Applications windows.
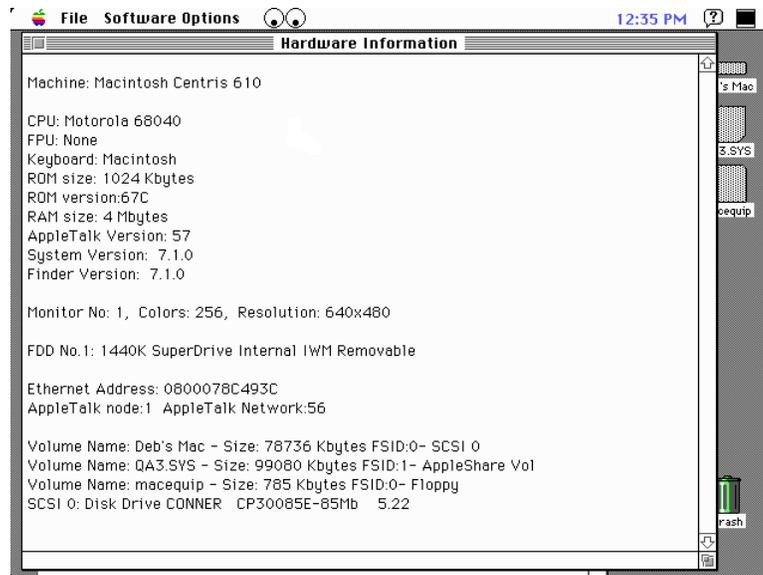
Figure 5-4: Hardware Information Detected by MACEQUIP

Figure 5-5: Software Applications Detected by MACEQUIP

Collecting Stand-alone MAC Inventory

MACEQUIP is also used to collect the hardware and software data from MACs that are not connected to the network. The collected data is placed onto a diskette and later added to the LAN Inventory transaction files to be included in the next audit.

The steps for including stand-alone MAC data in your LAN Inventory baseline inventory include the following:

1. Running MACEQUIP at the stand-alone MAC

2. Updating the LAN Inventory MAC transaction files to reflect the stand-alone data

3. Running an audit to include the stand-alone data in the baseline inventory

The procedures for each step are described in this section.

NOTES: a - The following discussion uses the term "MACEQUIP" to refer to both MAC programs. When following the procedures, use either the MACEQUIP 3.1 program or the MACEQUIP AUTOMATIC 3.1 program.

b - If you collect and audit the inventory of a stand-alone MAC and then later put the same MAC on the network and do a subsequent inventory and audit, two entries for the same MAC will be listed in the Inventory dialog box. Therefore, to avoid confusion, before running MACEQUIP and auditing the networked MAC inventory, first delete the node's entry in the Inventory dialog box.

Running MACEQUIP

Use the following procedure to collect the equipment inventory of a stand-alone MAC.

1. Copy the MACEQUIP file onto a Macintosh formatted floppy diskette.

2. Insert the floppy diskette into the stand-alone MAC.

3. Execute MACEQUIP from the floppy diskette.

    The inventory is collected.

4. Choose File | Quit.

    The inventory is complete. Repeat the procedure for additional stand-alone MACs, and use the same floppy diskette.

    The LAN Inventory MAC inventory transaction files must now be updated in order for the next audit to include the new inventory.

Updating MAC Transaction Files

As a result of taking inventory on a stand-alone MAC, two DOS-based files are created on the Macintosh-formatted diskette:

*   MACEQUIP.CFG contains the hardware inventory data

*   MACSOFT.LST contains the software inventory data

There are two methods of updating MAC transaction files.

Method 1

To include the stand-alone MAC inventory in the next audit, copy the MACEQUIP.CFG and MACSOFT.LST files into the LAI.320 program directory on the network.

If the MACEQUIP.CFG and MACSOFT.LST files residing in the LAI.320 program directory already contain data from other networked or stand-alone MACs, you must append the new information to the existing files in the LAI.320 program directory. To append the new data, first put the new data files (MACEQUIP.CFG and

MACSOFT.LST) into a DOS environment (i.e., a Novell Volume [or directory], a DOS floppy disk, or a DOS hard disk). Then append the data by using the DOS "TYPE" command on the new data files and redirecting the output of the TYPE command to the existing MACEQUIP.CFG and MACSOFT.LST files that reside in the LAI.320 program directory.

The TYPE command syntax is as follows:

```
TYPE [drive:][path..]source file >> [drive:][path..]target
file
```

For example, if the new data files are residing on Drive B: and the LAI.320 program directory is currently mapped to Drive K:, the commands to append both MACEQUIP.CFG and MACSOFT.LST would be executed as follows:

```
B:\>TYPE macequip.cfg >> k:macequip.cfg

B:\>TYPE macsoft.lst >> k:macsoft.lst
```

In this example, Drive B: is the current drive. Refer to your DOS documentation for more information on the TYPE command.

NOTE: To incorporate the stand-alone data into the LAN Inventory baseline inventory, you must select the MAC Hardware and Software options in the Audit Parameter Configuration dialog box before performing the audit. Also, the Macintosh Unknown Files to Identify option must be checked on the Software Options property sheet. (Refer to "Setting the Audit Software Options" in Chapter 4, "Set-up and Administration" for further information about defining audit parameters.)

Method 2

This method offers an alternative to having the files reside in the LAN Inventory program directory. LAN Inventory can also retrieve Macintosh inventory information from a site.

Place the MACEQUIP.CFG and MACSOFT.LST files into the transaction directory where the DOS EQUIP files are located. Then simply include this site in the audit's site scope and select one of the Macintosh options on the General property sheet in the Audit Parameters Configuration dialog box.

NOTE: Once you finish collecting inventory, you can run an audit, as described in Chapter 6.

Chapter 6   *Conducting an Audit*

Chapter 5 discussed the procedures for collecting inventory information. This chapter discusses the LAN Inventory audit process. In addition to the instructions for conducting an audit, a checklist is provided listing the activities you should consider before running the audit.

Introduction

Conducting an audit compiles the collected equipment inventory data from your workstations and file servers and adds it to LAN Inventory's baseline inventory. As a result of performing an audit, the baseline inventory files are updated to represent an accumulation of your most currently audited inventory information. The baseline inventory files provide data for various LAN Inventory reports, on-screen viewing, automatic notification of inventory changes, and the LAN Inventory software distribution capability.

Audits can be run at any time. However, the audit results depend on the audit settings, including audit scope, audit parameters, software options and notification options. These settings need to be established before the audit is conducted. (For details on these procedures, refer to "Audit Set-up and Administration" in Chapter 4.)

Auditing Checklist

Conducting an audit transfers the inventory information from the transactions databases to the LAN Inventory baseline database. For example, when a workstation inventory is performed, the collected inventory data is stored in a transactions database. When an audit is conducted, the data in the transactions database is then compared to the data in the baseline database. In general, all new inventory data is added to the baseline; all changed data is updated in the baseline and any missing data is then removed from the baseline.

Several LAN Inventory options enable you to customize the audit process to accommodate your specific auditing needs. This section briefly lists the items you should consider before conducting an audit.

NOTE: Many of the details on these items are provided in the discussion entitled "Audit Set-up and Administration" in Chapter 4.

Time Considerations

Auditing a large network can be a time-consuming process. Eliminate wasted time by defining the scope of the audit to include only the specific sites, file servers and components you are interested in auditing. For example, if you just received new transaction files from your Chicago office, it may not be necessary to include your New York office data in the audit. Simply remove the New York site from your scope specification and limit the audit scope to include only Chicago. In addition to specific site audits, you can conduct exclusive audits for software, hardware, file servers and/or workstations.

To define the Scope of Audit, Software Option and Audit Parameters, choose Configure | Audit Parameters and select the appropriate property sheet from the Audit Parameter Configuration dialog box. For further information regarding this dialog box, refer to Chapter 4, "Setup and Administration."

What to Audit

An audit can include networked PC data, file server data, and even stand-alone PC and Macintosh inventory data. "Inventory data" can be further defined to include hardware and/or software. LAN Inventory provides easy-to-use and intuitive programs to collect the inventory on networked and stand-alone workstations.

To define the information to be audited, choose Configure | Audit Parameters. Refer to Chapters 4 and 5 for further information regarding the Audit Parameter Configuration dialog box and PC/MAC inventory data, respectively.

Scheduling

LAN Inventory allows you to schedule audits. You can either run audits continuously, or you can specify the specific hour, day, week or month that audits be conducted. You may want an audit to be performed each night at midnight, or you may want the audit to be performed on the fifteenth day of each month. LAN Inventory logs in to the appropriate servers at the correct times to avoid any potential security violations. In addition, the results of an audit are always stored in the audit log for later review.

To define an audit schedule, choose Configure | Alerting. Fur further information regarding alerting, refer to "Define Alerting Criteria" in Chapter 4.

Multiple Sites

LAN Inventory allows you to manage inventory for multiple sites. If you are consolidating information from multiple sites, you should create directories for each site and copy the inventory transaction database files into those directories from the respective sites.

Choose the Define Sites property sheet from the Audit Parameter Configuration dialog box to define new sites. Choose the Site Scope property sheet to determine which sites should be included in the audit. Refer to "Establishing a Separate Transaction Directory" in Chapter 3, "Getting Started" for procedures on defining a transaction directory.

Alerting Options

Do you want to be notified about the outcome of the audit? LAN Inventory's alerting parameters allows you to define the conditions under which you want to be notified, as well as the method of notification. For example, you might want to be notified of all hardware changes that have been made to the file servers since the last audit. Further, you might want these results to be sent to you via cc:Mail. To define the audit notification settings, choose Configure | Alerting or the Alerting tool bar button to display the Alerting Options dialog box.

Auditing the Collected Inventory

Conducting a LAN Inventory audit creates or updates the baseline by incorporating the collected inventory data. The baseline inventory is created the first time an audit is performed. For all subsequent audits, the collected inventory is compared against the existing baseline, and the existing baseline is updated appropriately.

The collected inventory transactions represent any of the following:

- File server hardware and software

- PC workstation hardware and software (including stand-alone PCs)

- MAC workstation hardware and software (including stand-alone MACs)

Before the audit process starts, LAN Inventory considers the established parameters that have been defined in the Audit Parameters Configuration dialog box, such as:

- Whether the audit should occur automatically or upon request. If audits are defined to occur automatically, LAN Inventory also considers the specified audit interval time (e.g., daily - at 9 am; weekly - on Friday at 5 p.m.).

- Sites to be included in the audit.

- File servers to be included in the audit.

- System and application software to be included in the audit.

- Workstation and component types to be included in the audit (e.g., hardware and software transactions from PCs and file servers; only hardware transactions from MACs).

NOTE: Audit parameters can be changed at any time. Refer to "Audit Set-up and Administration" in Chapter 4 for details on defining audit parameters.

Running an Audit

The audit process uses the recently collected equipment inventory transaction information to update each existing individual equipment inventory record. In turn, the baseline inventory is updated. As a result of comparing the new current transactions to the baseline, audit statistics are generated. Reported changes in inventory include components, nodes or software that have been added, changed, or removed since the last audit. Audit results can be reviewed on screen or via hard copy report. (For further information, regarding viewing audit results, refer to Chapter 7, "Reviewing Audit Results.") Audits can be initiated at any time, regardless of whether automatic audits (e.g., daily, weekly) have been scheduled in the audit parameters.

Use the following procedure to initiate a LAN Inventory audit and update the baseline inventory with current equipment inventory data.

NOTE: Before you initiate the audit, ensure that all audit parameters are defined correctly and any stand-alone inventory data has been loaded into LAN Inventory.

1. Choose View | NLM Status.

    The Inventory NLM Status dialog box is displayed.

Figure 6-1: Viewing the NLM Status

The NLM status group box indicates the status of the LI.NLM.

Status	Description
Inactive	The NLM is loaded, but performing no tasks. It is not checking configuration files, performing an audit, or even scheduling or performing an audit at its appointed time. The NLM can only be placed in this state by receiving a pause command while in the waiting state. It can only be removed from this state by receiving a Start command.
Waiting	The NLM is performing its poll of the configuration files. An audit may have been scheduled while in this state, but if so, it has not as yet begun.
Active	The NLM is performing an audit. It does not check configuration files for changes while an audit is in progress. An audit can be canceled with a Stop command or paused with the Pause command. The NLM will automatically enter this state when the scheduled time for an audit is reached or upon receipt of an Audit Now command.
Paused	The NLM enters the paused state upon receipt of a Pause command while an audit is in progress. In this state, all database files remain in their current state (i.e., all open files remain open). The NLM can only be removed from this state upon receipt of a cancel, resume, or do audit command.

2. Choose Start to proceed with the audit.

    Use the Pause and Stop buttons to halt the audit process at any time.

3. Choose Close to exit this dialog box.

Chapter 7 *Reviewing Audit Results*

Chapter 6 discussed the procedures for conducting an audit. This chapter describes how to view audit results.

Introduction

When an audit has been completed, the audit results are available through the Audit Log dialog box. The Audit Log dialog box provides both summary and detail information regarding the changes made to the baseline inventory as a result of the audit. The software applications that were detected upon inventory collection but not recorded in the inventory database are listed and reported in the Unidentified Software dialog boxes.

Viewing the Audit Log

The Audit Log provides both summary and detail information about the changes that were made to the baseline inventory as a result of an audit. The information available from the Audit Log includes:

Changes	Contents
Summarized	The date and time of the audit, "Inventory NLM" and the number of changes made to inventory categories (e.g., 5 nodes added; 1 system file updated)
Detailed	An itemized list of components, nodes and system files that have changed since the last audit (e.g., at the site named SALES, a new node JOHN was found)

Viewing the Audit Log

Audit summary and detail information is maintained by LAN Inventory for as long as necessary. For example, your organization might require that the audit results be accessible on-line for a year. In this case, each audit performed within the last year is listed in the Audit Log dialog box, and the results of each audit can be viewed.

The only modification that can be made to the Audit Log is the deletion of an audit entry. Continuing with the above example, all audits that occurred more than a year ago would need to be deleted from the Audit Log.

Use the following procedure to view and manage on-line audit results.

1. Choose View | Audit Log.

   The Audit Log dialog box is displayed.
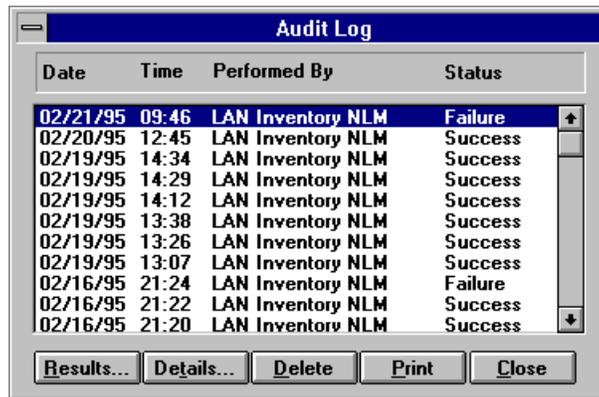
Figure 7-1: Audit Log

The dialog box lists all the audits that have been performed. The Date, Time, Performed By and Status information is listed for each audit.

2. To view the summarized results of an audit, select an audit in the Audit Log dialog box and choose Results.

   The Audit Results dialog box is displayed.
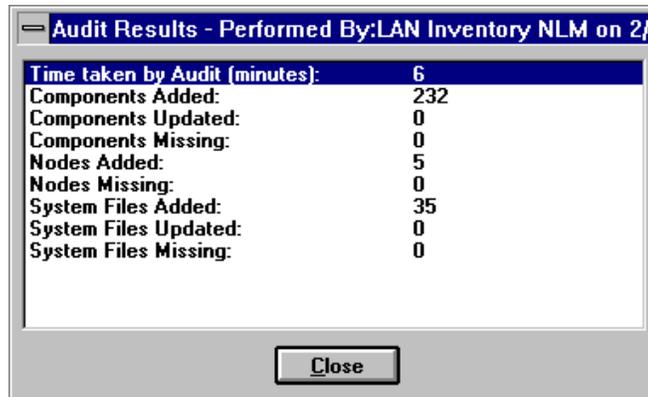
Figure 7-2: Summarized Audit Results

This dialog box summarizes the changes made to inventory categories as a result of the audit.

NOTE: The Audit Results dialog box can also be displayed by double clicking on an audit in the Audit Log dialog box.

To view detailed information about a category that has an entry greater than zero (0), double click on the category name. For example, if two system files are added as a result of the audit, you can double click on the System Files Added category to view the names of the added system files.

Choose Close to close the Audit Results dialog box.

3. To view the audit details, select an audit from the Audit Log dialog box and choose Details.

An Audit Details dialog box is displayed which contains a itemized list of audited components, nodes and system files.
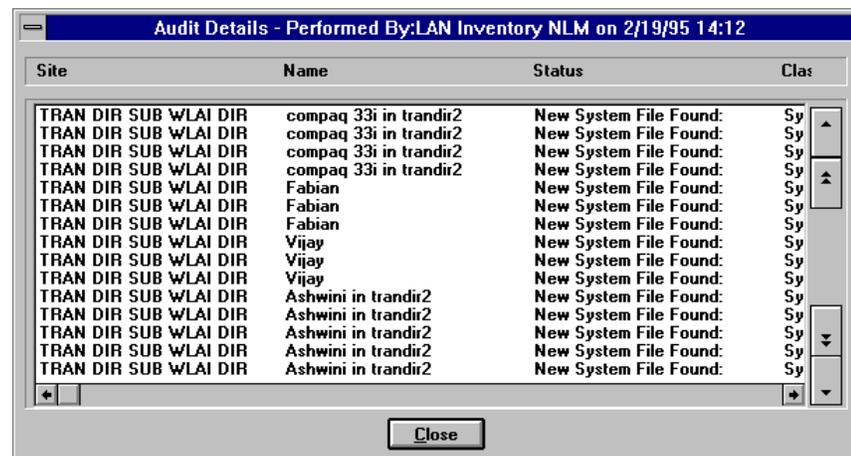
Figure 7-3: Detailed Audit Results

Use the scroll buttons and scroll bars to view all the information. Choose close to close the Audit Details dialog box.

NOTE: Procedures for viewing the detailed dialog box shown above are also provided in Step 2; however, the dialog box accessed in Step 2 only shows the details of a selected component. By choosing Details in the Audit Log dialog box, all component changes for an audit are displayed in the audit log details dialog box.

---

4. To remove an audit entry from the Audit Log dialog box list, select an audit and choose Delete.

A LAN Inventory message box is displayed prompting you to confirm the deletion. Choose Yes to continue and remove the selected audit from the list.

5. To print the results of an audit entry in the Audit Log dialog box list, select an audit and choose Print.

    The details of the selected audit are sent to the printer currently defined in your print set-up.

6. Choose Close to exit the Audit Log dialog box.

Managing Unidentified Software

"Unidentified software" is the group of software files that were detected during an inventory but were not listed in the PC or MAC Software qualification lists. As a result, LAN Inventory is not able to categorize and identify the software during the audit. For example, assume that an inventory performed on PC workstation X results in detecting the file named ABC.EXE. If file ABC.EXE is not listed in the PC Software database when an audit is performed, then the file is labeled as "unidentified" and added to the Unidentified Software list.

NOTE: Unidentified software is only collected if the "Unknown Files to Identify on Local Site" options for Fileserver, Workstation and/or Macintosh are selected in the Software Options property sheet. If none of these options are checked, then only the applications listed in the PC or MAC Software Lists are included in the inventory and audit. Refer to "Setting the Audit Software Options" in Chapter 4 for further information.

In addition to viewing the list of unidentified software, you can "identify" the files by transferring them to their appropriate database. In the above example, file ABC.EXE can be transferred to the PC Software qualification list. By doing so, the next time an audit is performed or inventory is collected, the file will no longer be tagged as "unidentified."

This section includes the following discussions:

•   Viewing and managing the Unidentified Software list

•   Transferring files from the Unidentified Software list individually and as a group of applications

•   Illustration of the "application group" concept

Viewing and Managing Unidentified Software

Use the following procedure to view, sort, print and delete items from the list of unidentified software.

1. Choose Configure | Unidentified PC/Fileserver Software or Unidentified Macintosh Software.

   The last command you select depends on the workstation type for which you want to view unidentified software.

   The Unidentified Software dialog box is displayed.
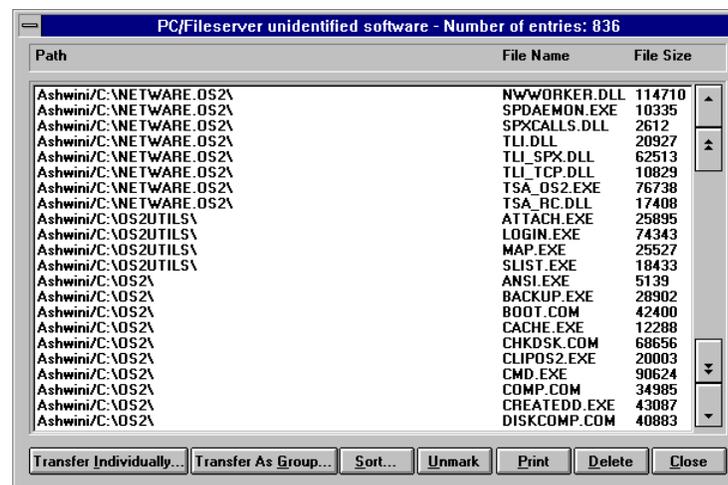
Figure 7-4: The List of Unidentified Software

Use the scroll buttons to scroll through the list of file names. The following information is provided:

- File Path

- File Name (or File Creator for Macintosh software)

- File Size

NOTE: A File Name field is listed for PC applications; whereas, a File Creator field is listed for Macintosh applications in the Unidentified Software dialog box.

2. To sort the Unidentified Software list, choose Sort.

   The Sort Options dialog box is displayed allowing you to select the sort method. The items in the Unidentified Software list can be sorted by either File Path or File Name.

Figure 7-5: Sorting Unidentified Software

Select the appropriate sort method, and choose OK. The list is sorted to reflect the selected method. For example, if you chose File Name as your sort option, the file name of each entry in the list would appear first.

3. To print the Unidentified Software list, choose Print.

    The entire list of Unidentified Software is sent to the printer as defined by your current print parameters.

4. To delete an item from the Unidentified Software list, select the desired item name and choose Delete.

    The selected file name is removed from the list. Multiple files can be selected and simultaneously deleted from the list. To select more than one file name, simply click on each desired file name.

5. To deselect any highlighted files, choose Unmark.

    The highlight is removed from all files that were previously selected.

6. To close the Unidentified Software list, choose Close.

    All changes made to the Unidentified Software list are saved.

Transferring Unidentified Software

All files listed as unidentified software can be transferred to their appropriate database (i.e., PC or MAC Software list) for inclusion in subsequent audits. Once transferred, the file(s) are removed from the Unidentified Software list and added to the target database.

Many applications require more than one executable file to run the software. To accommodate this requirement and reduce the number of files listed in the software databases, LAN Inventory allows you to mark a particular file as the key or identifying component of a software product. Therefore, files can be transferred from the Unidentified Software list individually or in groups.

Use the following procedure to transfer unidentified software individually.

1. Choose Configure | Unidentified PC/Fileserver Software or Unidentified
    Macintosh Software.

    The last command you select depends on the workstation type for which you
   want to view unidentified software. The Unidentified Software dialog box is
    displayed as in Figure 7-4 above.

    The items in the Unidentified Software list can be sorted by either file path/file
    creator or file name. To change the method by which the items are sorted,
    choose Sort. The Sort Options dialog box is displayed. Select the appropriate
    sort method, and choose OK. The list is sorted to reflect the selected method.

2. Select an individual file name to be transferred.

    Multiple files can be selected by clicking on more than one file name.

    Use the scroll buttons to scroll through the list of file names.

3. Choose Transfer Individually.

    The Transfer Unidentified Software dialog box is displayed.
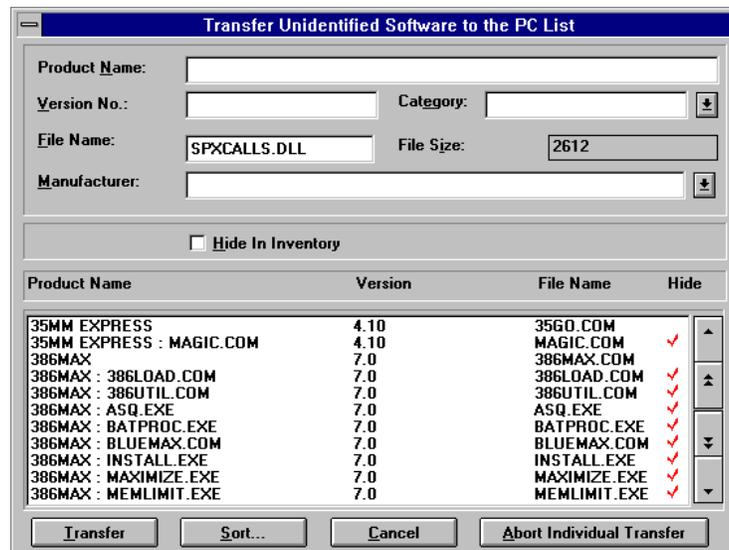
Figure 7-6: Transferring a Single Unidentified File

Depending on the type of unidentified software being viewed (i.e., either PC or
MAC), the corresponding Software list displays on the bottom half of the dialog
box for reference purposes. In Figure 7-6, the PC/Fileserver Unidentified
Software list is being viewed, and therefore, the Transfer Unidentified Software
to the PC List dialog box contains the PC Software list.

The File Name and File Size fields are automatically filled in.

4. In the Product Name text field, enter the name which identifies the software product to which the file belongs.

    > **NOTE:** If you want to add the single unidentified file to a group of files already defined in the PC or MAC Software List, then add a colon to the Product Name followed by the file name. For example, if you want to add the ABC.EXE unidentified file to the ABC product group, then enter 'ABC:ABC.EXE' in the Product Name field. By doing this, ABC.EXE will be listed with all other ABC product files in the software list.

5. In the Version Number text field, enter the version number of the software product to which the file belongs.

6. From the Category drop down list, select the category of the software product to which the file belongs.

7. From the Manufacturer drop-down list, select the manufacturer of the software product to which the file belongs.

    If you enter a new manufacturer name, the name is added to the Manufacturers qualification list.

8. If you want to hide the file from inventory display, select the Hide In Inventory radio button.

    > **NOTE:** Hidden files are listed in the qualification list, but cannot be viewed in an inventory list.

9. Choose Transfer.

    The selected file is transferred to the target database.

10. When all files have been transferred, choose close in the Unidentified Software list dialog box.

Use the following procedure to transfer unidentified software as a group.

1. Choose Configure | Unidentified PC/Fileserver Software or Unidentified Macintosh Software.

    The last command you select depends on the workstation type for which you want to view unidentified software. The Unidentified Software dialog box is displayed as in Figure 7-4 above.

    The items in the Unidentified Software list can be sorted by either file path/file creator or file name. To change the method by which the items are sorted, choose Sort. The Sort Options dialog box is displayed. Select the appropriate sort method, and choose OK. The list is sorted to reflect the selected method.

2. Select a group name to be transferred.

Multiple files can be selected by clicking on more than one file name.

Choose the line up/line down and page up/page down scroll buttons to scroll through the list of file names.

3. Choose Transfer As Group.

    The Transfer Unidentified Software as a Group of Applications dialog box is displayed.


Figure 7-7: Transferring a Group of Unidentified Files

4. In the Group Base Name text field, enter the name which identifies the software product to which the group of files belong.

5. In the Group Version text field, enter the version number of the software product to which the group of files belong.

6. From the Group Manufacturer drop-down list, select the manufacturer of the software product to which the group of files belong.

    (If you enter a new manufacturer name, the name is added to the Manufacturers qualification list.)

7. From the Category drop-down list, select the software category in which the group of files belong (e.g., word processing, games).

    If you enter a new Category name, the name is added to the Software Categories qualification list.

8. Select an Inventory Option:

Option	Description
Hide in Inventory	Hides the entire set of files from inventory.
Inventory All Members	Identifies all files as separate components to be

	inventoried.
Inventory Identifier Only	Only inventories the package identifier.

9. Select one file that should be used to identify the group of files from the Group Identifier list box.

NOTE: A group of unidentified files cannot be added to another group of files already defined in the PC or MAC Software List. Files can only be added to groups individually.

---

10. Choose OK to begin the group transfer.

    The selected files are transferred to the target database.

11. When all files have been transferred, choose close in the Unidentified Software list dialog box.

NOTE: To include all transferred PC files in your inventory, you must subsequently run EQUIP on all workstations and then perform an audit. To include all transferred MAC files in your inventory, you must subsequently perform an audit.

Illustrating an Application Group

Multiple files can be transferred from the Unidentified Software list in groups. Transferring a group of files associates the entire group with a specific software product. For example, the unidentified WordPerfect files SPELL.EXE, WP.EXE, and WPINFO.EXE can be transferred under the group name "WordPerfect." In addition to a group name, the transferred files are also assigned to a specific version of the product, as well as the product's manufacturer name. For example:

*   Group Base Name: WordPerfect

*   Group Version: 5.10

*   Group Manufacturer: WordPerfect Corp.

After being transferred, the WordPerfect files would be listed as follows in the PC Software List:

*   WordPerfect - SPELL.EXE   5.10

*   WordPerfect - WP.EXE   5.10

*   WordPerfect - WPINFO.EXE   5.10

Chapter 8 *Maintaining the Baseline Inventory*

Chapter 7 discussed the procedures for reviewing audit results. This chapter describes how to review and make changes to the equipment information maintained in LAN Inventory's baseline inventory file.

Introduction

The baseline inventory is the equipment inventory database that is updated each time an audit is performed. LAN Inventory collection programs (EQUIP, SA_EQUIP, MACEQUIP) place the collected hardware and software data in "transaction files." The audit process compiles the transaction files and compares the most recently collected equipment inventory information against the current baseline. As a result, a new updated baseline inventory database is created.

The baseline is made up of equipment inventory records which contain data specific to each type of equipment (e.g., file server, workstation). The equipment inventory records maintain data such as manufacturer, network address, memory, software applications and storage. These records provide a basis for LAN Inventory reports and on-screen viewing. As a result, you might need to verify and update the equipment inventory information, as well as add supporting information to the component data.

Maintaining Equipment Inventory Data

Equipment inventory records for each workstation, file server and stand-alone machine are created or updated automatically during an audit to reflect the most current hardware and software inventory information.

In addition to simply viewing the inventory data, record maintenance is sometimes necessary. For example, the floppy disk information collected by the EQUIP program is determined by the machine's CMOS set-up. If the CMOS set-up is incorrect, then the collected information regarding the machine's floppy disk(s) will not be accurate. To avoid having to run another inventory (after correcting the CMOS set-up), equipment inventory data can be corrected on-line.

Two primary windows are associated with equipment inventory records:

Window	Description
Inventory Window	A summary screen listing each record (i.e., node) in the Equipment Inventory database.
Site: Detail Equipment Inventory Record	Displays and allows editing of equipment-specific information for a selected node. Information includes computer data, mass storage, keyboard and port data, network adapter information and memory. Sub-dialog boxes provide software details, system files or miscellaneous equipment information for the selected record.

The Inventory window is shown below in Figure 8-1.
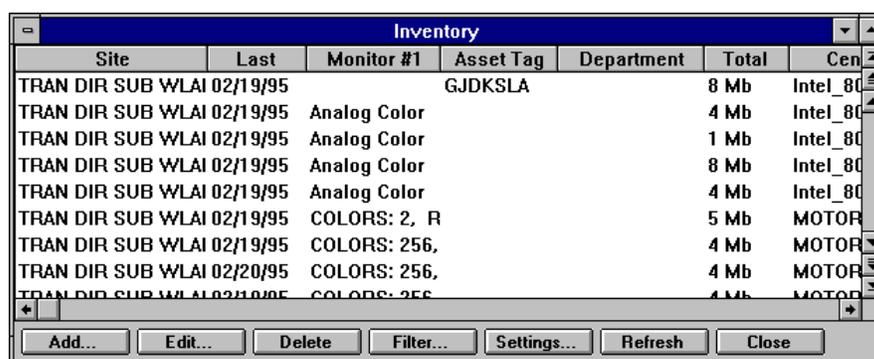
Figure 8-1: Inventory Summary

This inventory window is designed to be flexible enough to meet your specific administrative needs. Rather than having a fixed number of preset data fields, you can select which item fields you want to have displayed in the above Inventory window. The field formats that you specify, such as data fields, widths, sort order and grid display, are stored between LAN Inventory sessions in an .INI file.

The main spreadsheet area contains the data retrieved for the fields that you set up in the Inventory Settings dialog box. You can change the way the data is presented in the spreadsheet columns by choosing Settings and making changes in the Inventory Settings dialog box. Because this spreadsheet can have a virtually unlimited number of rows as there is a row for each node equipped, several scroll buttons are provided for full viewing of the information.

The spreadsheet window also offers the following buttons:

- Add

- Edit

- Delete

- Filter
- Settings
- Refresh
- Close

The functions of these buttons are described in the following procedure.

Viewing Equipment Inventory Data

Use the following procedure to display the Inventory window which provides a summary of each record in the Equipment Inventory database.

1. Choose Tools | Inventory or choose the Inventory tool bar button.

   The Inventory window is displayed, listing the workstations and file servers for each audited site.

   NOTE: The Inventory window is a spreadsheet window that can be customized according to your needs. You can resize the columns, specify which information is shown and change the order of the columns. To resize the columns, simply click down in the desired column header area and drag the mouse to the desired size. For more information on additional options, refer to the next section.

   The spreadsheet records are initially listed in alphabetical Site order; however, you have the option of resorting the records.

2. To change the sort method of the records, choose Filter.

   The View Inventory Filter Options dialog box is displayed.

Figure 8-2: Sorting the Inventory Summary

3. To restrict the list of records displayed to specific types, select one or more filter criteria fields from the following drop-down lists:

    - Site

    - Location

    - Name

    - Type

    Choose OK. Only the inventory records that match the filter criteria will display in the Inventory window.

4. To view or edit the details of a record, select the desired record and choose Edit.

    You can also double click on the record to view the record details. The detail dialog box is displayed.
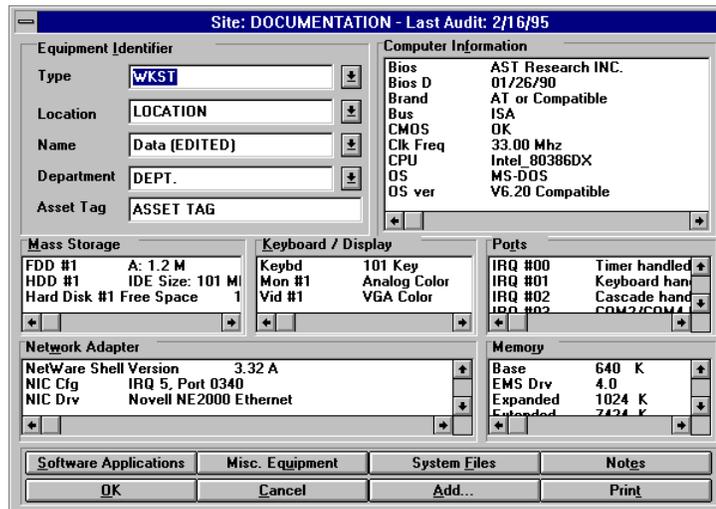
Figure 8-3: Inventory Details for a Workstation

The title bar of the dialog box indicates the last time an audit was run on the site for which the data exists.

The fields in the detail dialog box differ depending on the record type (e.g., file server, MAC, PC workstation, and spare part). For example, the details in Figure 8-3 above are representative of a PC workstation. The record type for a MAC workstation would not have a Ports field. The fields displayed for each record type are itemized in Appendix A of this manual.

Choose the horizontal and vertical scroll buttons in any of fields to scroll through the information.

5. To close the Inventory dialog box, choose OK.

Changing the Inventory Window Display Settings

Use the following procedure to alter the settings governing the inventory window display.

1. Choose Tools | Inventory or choose the Inventory tool bar button.

   The Inventory dialog box is displayed, listing the workstations and file servers for each audited site.

2. Choose Settings.

   The Inventory Settings dialog box is displayed.
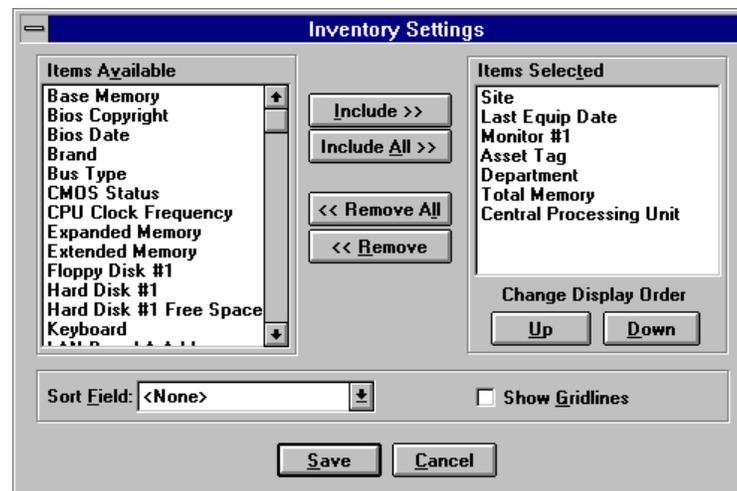
Figure 8-4: Altering Inventory Window Settings

The Items Available list indicates all the inventory data fields which you can display on the inventory spreadsheet. For example, you could choose to display the base memory and extended memory for each record by selecting them from the Items Available list. The Items Selected list indicates those items already displayed for each record.

3. From the Items Available list, select the desired item.

4. Choose Include.

   The item is transferred to the Items Selected list. To select all items, choose Include All. The items you select will then appear in the Items Selected window.

   Use the Up and Down buttons to change the display ordering of columns in the inventory spreadsheet. The order in which the items are displayed in the Items Selected list box determines the order in which the columns are presented in the inventory spreadsheet. To change the display order for a particular item, first

select the item, then use the Up and Down buttons to reposition it to the desired location.

To remove an item, select the item in the Items Selected list and choose Remove. To remove all items, choose Remove All.

5. From the Sort Field drop down list, select a sort criterion.

   Choose from the following options:

   - None

   - Site

   - Site + Location

   - Site + Asset Tag

   - Site + Name

   - Asset Tag

   - Name

6. Select the Show Gridlines check box if you want the inventory summary window to be displayed with gridlines separating the information.

7. Choose Save to exit this dialog box and preserve the display settings.

Managing Equipment Inventory Records

From the Inventory window, new equipment inventory records can be added, existing records can be removed, and/or a record's detail information can be modified. (The Inventory window is displayed by choosing the Inventory tool bar button or by choosing Tools | Inventory.)

Use the following procedure to add records to the Equipment Inventory database from the Inventory window.

1. Choose Add.

   The Add New Equipment dialog box is displayed allowing you to select field values from drop-down lists to define a new record to be included in future audits.

Figure 8-5: Adding New Equipment

3. From the Site drop-down list box, select the desired site or enter a new one.

4. From the Type drop-down list box, select the desired type or enter a new one.

5. From the Location drop-down list box, select the desired location or enter a new one.

6. From the Name drop-down list box, select the desired name or enter new one.

7. From the Department drop-down list box, select the desired department or enter a new one.

8. In the Asset Tag text box, enter an asset tag.

   The Asset Tag field does not have an associated drop-down list and must be manually entered.

9. Choose OK.

   The new record is saved and added to the Inventory list. Inventory data for the new record is automatically added by LAN Inventory after you perform an inventory on the machine and then run an audit.

Use the following procedure to remove records from the Equipment Inventory database.

1. Select the desired record from the list.

2. Choose Delete.

   A LAN Inventory message box is displayed prompting you to confirm your deletion.

3. Choose Yes to delete the record.

Choosing No exits without removing the record.

Use the following procedure to edit the records of the Equipment Inventory database.

1. Select the desired record from the list.

2. Choose Edit.

    You can also double click on the record in the Inventory dialog box to view the record details. The detail dialog box is displayed.

    The following actions can be performed in the detail dialog box:

3. To review the status of equipment inventories taken on the record shown in the detail dialog box, choose Notes.

    The Notes dialog box is displayed showing the last date on which an audit was performed which included this workstation, file server or MAC.
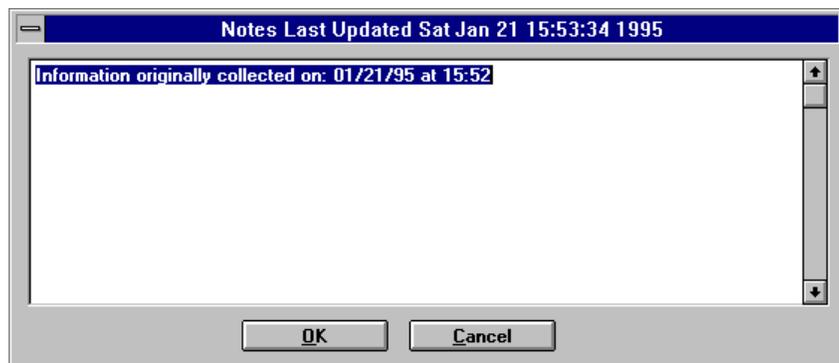

Figure 8-6: Adding Notes to Records

    Type any additional notes you wish to store for this inventory record, and choose OK to return to the detail dialog box.

4. To print the displayed equipment inventory record, choose Print.

    A pop-up dialog box displays a "printing" message while the record is being printed.

5. To review the contents of the system files applicable to the record shown in the detail dialog box, choose System Files.

    (This button is not available for file servers and MACs.) The System Files Available list displays.
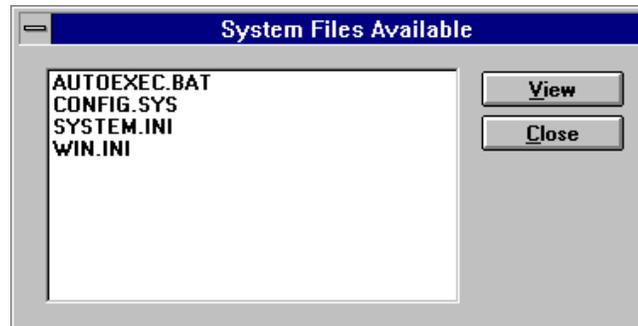
Figure 8-7: System Files Available for the Selected Record

To review the contents of a system file, select the desired file and choose View. A listing of the file contents is displayed, such as in Figure 8-8 below for SYSTEM.INI.
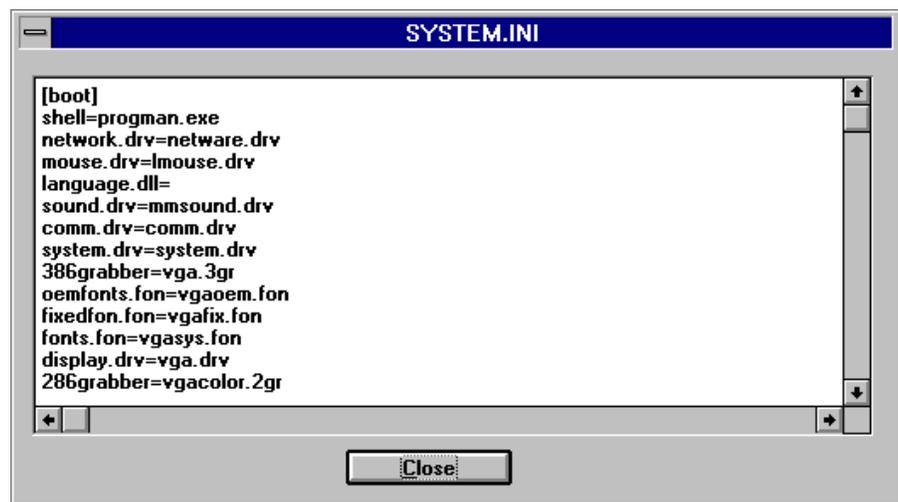

Figure 8-8: SYSTEM.INI File Contents

Note that editing cannot be performed from this dialog box. Choose Close twice to return to the detail dialog box.

6. To add a component to the record shown in the detail dialog box, choose Add.

The Components dialog box is displayed.
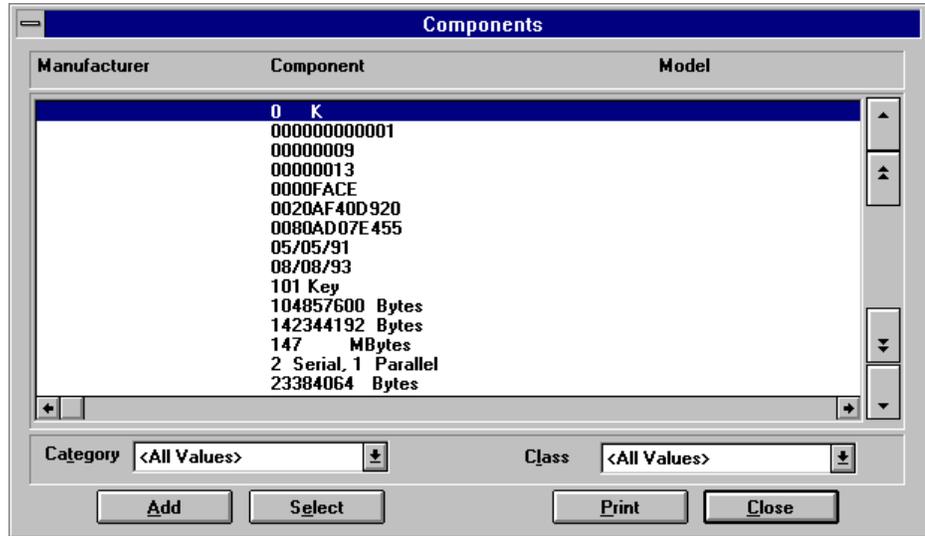
Figure 8-9: Viewing Record Components

7. To display specific component information, select a component Category and Class from the drop-down list boxes in the lower section of the Components dialog box.

   The data which matches the selected Category and Class is displayed in the Components dialog box. To add a component to the record shown in the detail dialog box, select an item and choose Select.

8. To add new component data to the LAN Inventory database, choose Add.

   The Add Component dialog box is displayed.

Figure 8-10: Adding a Component

Enter the following information for the new component.

- Manufacturer

- Product Name

- Model

- Category

- Class

- Vendor

- Maintenance Vendor

- Contract Type

All entries except for Product Name can be selected from drop-down lists.

Choose OK to add the new component information to the Components dialog box. Choose Close to return to the detail dialog box.

9. To modify miscellaneous equipment related to the record shown in the detail dialog box, choose Misc. Equipment.

    The Miscellaneous Equipment dialog box is displayed listing any items in this category.

Figure 8-11: Maintenance Equipment

Highlight an item and choose Edit to modify the item, or choose Delete to remove the item.

Choose Close to save any changes and to return to the detail dialog box.

10. To review the software residing on the workstation, file server or MAC displayed in the detail dialog box, choose Software Applications.

The Software Applications dialog box is displayed the application name, version, file name and path of each software application associated with this record.
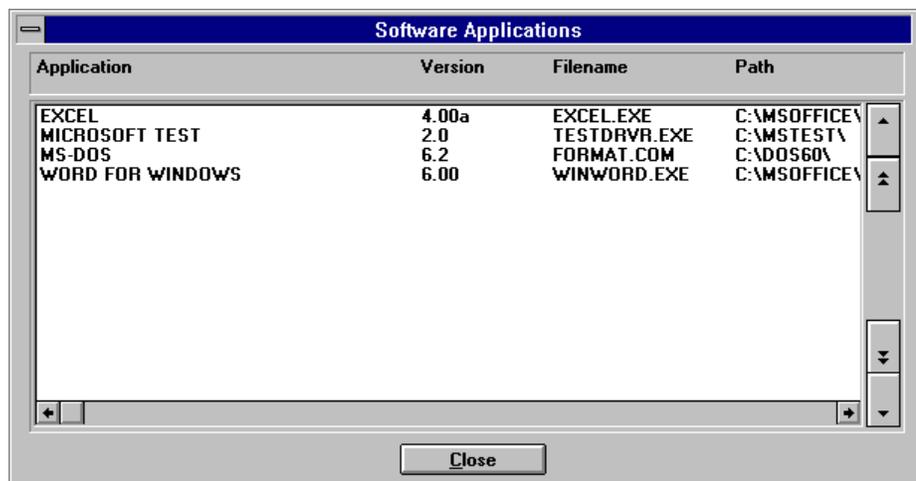

Figure 8-12: Software Applications Dialog Box

Choose Close to close the Software Applications dialog box.

11. To modify a field in the detail dialog box, double click on the field to be modified.

The Equipment Component dialog box is displayed.

Figure 8-13: Equipment Component Dialog Box

For detailed information on reviewing, adding, or modifying purchasing and/or maintenance information for a detail field, refer to the "Maintaining Component Information" in this chapter.

12. To exit the detail dialog box and save any changes made to the equipment inventory record details, choose OK.

Maintaining Component Information

When an audit is performed, LAN Inventory compares the new inventory data against the data maintained in its databases and the existing equipment inventory records. Performing an audit updates the data in the equipment inventory records.

You can enhance the equipment inventory record by adding and maintaining data regarding the purchase and maintenance of individual components associated with your PC workstations, file servers and MACs.

Managing Component Information

Use the following procedure to review, add, or modify purchasing and/or maintenance information for a hardware component.

1. Choose the Inventory tool bar button, or choose Tools | Inventory.

The Inventory window is displayed. This summary window displays the workstations and file servers for all audited sites.

2. Select the desired record.

3. Choose Edit.

   You can also double click on the record in the Inventory dialog box to view the record details. The detail dialog box is displayed.

4. To add, edit or delete purchasing and/or maintenance information for a *hardware component* associated with this record, double click on the field which represents the component.

   For example, double click on the "Clk Freq" entry in the Computer Information section of the detail dialog box. The Equipment Component dialog box is displayed.

   This dialog box lists the purchasing and maintenance information for the selected hardware component.

Figure 8-14: Clock Frequency Component Information

   The following actions can be performed from within the Equipment Component dialog box:

5. To add or edit purchasing or maintenance information for the hardware, type new values in the corresponding fields, or select values from the drop-down lists.

   Choose OK to save the new field values.

6. To delete the hardware component, choose Delete.

   A LAN Inventory message box is displayed prompting you to confirm your deletion. Choose Yes to remove the component from the equipment inventory record.

Use the following procedure to review, add, or modify purchasing and/or maintenance information for a software application associated with this record..

1. Choose the Inventory tool bar button, or choose Tools | Inventory.

   The Inventory window is displayed. This summary window displays the workstations and file servers for all audited sites.

2. Select the desired record.

3. Choose Edit.

   You can also double click on the record in the Inventory window to view the record details. The detail dialog box is displayed.

4. To review the *software application* associated with this record, choose Software Applications.

   The Software Applications dialog box is displayed listing all software files associated with this record.
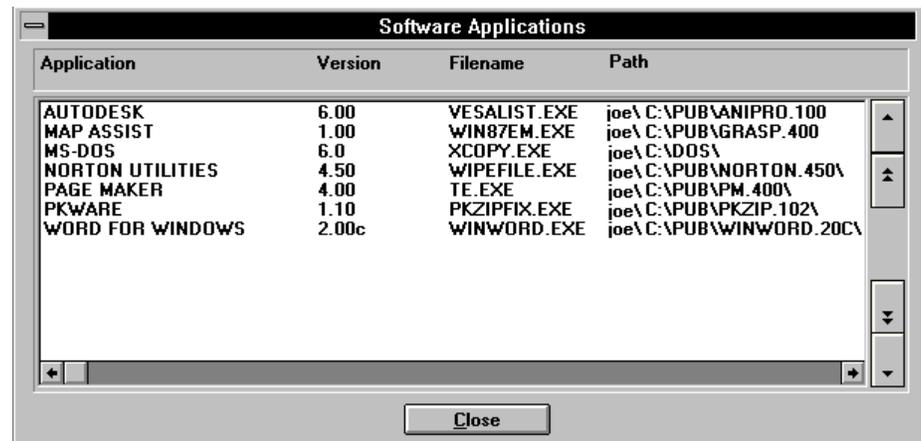
Figure 8-15: A List of Software Applications

5. To add or edit purchasing and/or maintenance information for a software application associated with this record, double click on the application name.

   The Equipment Component dialog box is displayed listing the purchasing and maintenance information for the selected software file. Enter new values in the corresponding fields, or select values from the drop-down lists.

   Choose OK to save the new field values.

6. From within the Equipment Component dialog box, to review the path, version or size of the displayed software file, choose Additional Application Info.

The Additional Software Information dialog box is displayed with the Path, File Name, Version, and Size of the selected file.
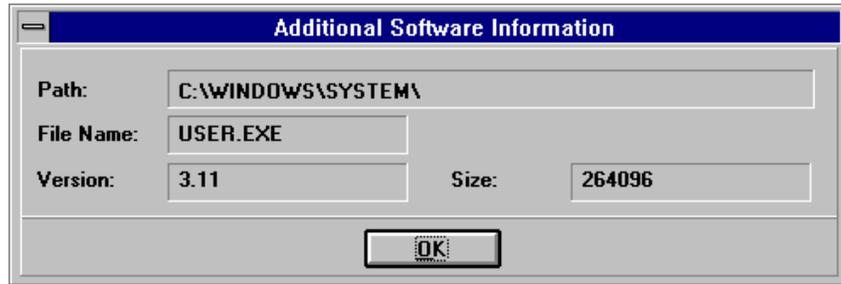
Figure 8-16: Additional Software Information Dialog Box

Choose OK to return to the Equipment Component dialog box.

7. Choose OK to close the Equipment Component dialog box and save the editing changes.

Chapter 9 *Inventory Reports*

Chapter 8 explained how to maintain the LAN Inventory equipment database. This chapter discusses LAN Inventory reporting module and presents instructions for generating reports.

NOTE: Because BrightWorks' software distribution capabilities are provided with the inventory capabilities, the procedures in this chapter also pertain to generating distribution reports.

Introduction

LAN Inventory is shipped with several pre-defined inventory and distribution reports called "style sheets." These style sheets represent frequently requested reports which can also be customized to accommodate a specific need. By performing a "query," the information included in a report can be filtered according to virtually any combination of values maintained in the LAN Inventory database. For example, a report based on the Applications by Name style sheet will list all software applications in the LAN Inventory database. The reported software data can also be filtered to include only the Microsoft Word software running on 386 machines with CPU speeds greater than 16 MHz.

Queries can be saved and attached to any number of style sheets. As discussed in the BrightWorks manual, the same queries apply to the scopes used within LAN Inventory's software distribution feature.

In addition to customizing the pre-defined style sheets, reports that are created using the Crystal Reports software can be added into the LAN Inventory system. These added reports can be customized, renamed and/or deleted.

NOTE: The Crystal Reports software is installed using the LAN Inventory install utility. Refer to Chapter 2, "Installation" for further information. When installed, a Crystal Reports program icon is added to the MCAFEE Program Manager group.

> **NOTE:** Because the reporting function for inventory and distribution reports is the same, instructions for both are provided in this chapter. If you purchased LAN Inventory, the distribution reports described in this chapter are not included with your product. If you purchased BrightWorks, you get both the inventory and distribution reports.

Using Pre-defined Report Style Sheets

The pre-defined inventory style sheets supplied with LAN Inventory represent frequently requested inventory reports. A pre-defined report can be generated "as is," or it can be customized by applying queries which further define the data to be included in the report. This section lists the procedures for generating a report using the pre-defined style sheets.

> **NOTE:** The pre-defined LAN Inventory report style sheets cannot be deleted.

Printing Pre-defined Reports

Use the following procedure to generate a pre-defined report without applying any queries.

1. Choose Reports | Choose Report.

    The Choose Report dialog box is displayed listing the reports pertaining to inventory and distribution.
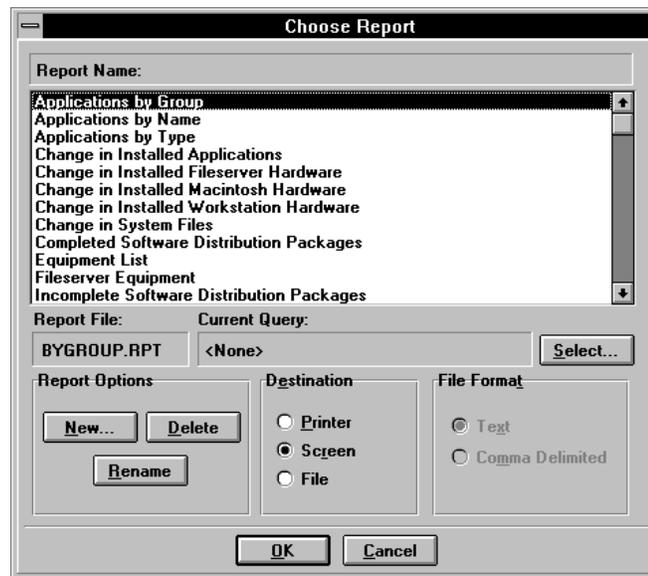
Figure 9-1: Generating Inventory and Distribution Reports

2. Select the report you want to generate from the list of Report Names.

   Your selection is highlighted. The default selection is the first report name in the list.

3. Select the report's Destination.

   The following destinations are available:

Destination	Description
Printer	Sends the report to the printer and uses the currently defined Printer Set-up parameters.
Screen	Sends the report to a dialog box on your screen. Use the scroll bars to navigate through the report contents. Double click on the control menu button to close the dialog when you are finished.
File	Sends the report to a file. When this option is selected, the File Format options become available. The format options are: - Text- output is saved in ASCII format. - Comma Delimited - output is saved in a comma delimited format in which commas are used to separate the fields.

4. Choose OK to initiate the creation of the report.

A Printing dialog box is displayed indicating the status of the report generation.

Once the report is complete, it is displayed in a report window which has extensive navigation options.

If the report is being sent to a file, you are prompted to enter a file name. Enter the file name and destination and choose OK. The Printing dialog box displays even if the report is being sent to a file.

If the report is sent to the screen, the resulting report displays in the Crystal Reports dialog box. Refer to the section "The Report Window" later in this chapter for more information about the report on the screen.

A List of Pre-defined Inventory Reports

The pre-defined inventory reports supplied with LAN Inventory (and BrightWorks) are listed below. The report name, file name and definition are provided.

Report Name	File Name	Categorized by:
Applications by Group	BYGROUP.RPT	Site and then User; this report lists the Name, Type, Version and Publisher of each application.
Applications by Name	BYNAME.RPT	Site and then Application Name; this report lists the Type, Version, Publisher and User of each application.
Applications by Type	BYTYPE.RPT	Site and then Application Type; this report lists the Name, Type, Version and Publisher of each application.
Change in Installed Applications	CHINSAPP.RPT	Site and then User Name; this report lists the names and status of the applications that have changed since the last audit.
Change in Installed Fileserver Hardware	CHISHWSV.RPT	Server Name; this report lists the file server hardware and the changes that have occurred since the last audit.
Change in Installed Macintosh Hardware	CHISHWMC.RPT	Macintosh User Name; this report lists the Macintosh hardware and the changes that have occurred since the last audit.
Change in Installed	CHISHWPC.RPT	PC User Name; this report lists the

Workstation Hardware		PC hardware and the changes that have occurred since the last audit.
Change in System Files	SYSFCHG.RPT	Site and then by User Name; this report lists the system file names and the modifications that have occurred since the last audit (e.g., new, missing).
Compaq Workstation Report	COMPAQ.RPT	Lists the asset tag, chassis serial number, system board revision level, monitor information, and machine identification. These features are only available on Compaq machines manufactured after 1995.
Equipment List	EQIPLIST.RPT	Site and then by User Name; this report lists the hardware and provides a description of each item.
Fileserver Equipment	FSVER.RPT	Server Name; this report lists the identifying information and provides a description of each hardware component.
Installed Fileserver Hardware	INSTHWS.RPT	Site and then Server Name; this report provides a description of each hardware component.
Installed Macintosh Hardware	INSTHWM.RPT	Site and then Macintosh User Name; this report provides a description of each hardware component.
Installed Workstation Hardware	INSTHWP.RPT	Site and then PC User Name; this report provides a description of each hardware component.
Macintosh Equipment	MAC_ST.RPT	Macintosh User Name; this report lists the identifying information and provides a description of each hardware component.
Workstation Report	WSREPOT.RPT	PC User Name; this report lists the identifying information and provides a description of each hardware component.

Using Queries to Customize Reports

Queries can be defined and applied against a report to act as a filter for the data gathered from the LAN Inventory database. Queries can be saved and applied to any number of reports. The same queries can also be used when creating scopes for BrightWorks' software distribution, as discussed in the BrightWorks manual.

This section lists the procedures for:

- Applying a query to a report

- Removing a query from a report

- Creating a new query

- Editing a query

- Deleting a query

Applying a Query to a Report

By applying a query against report data, you can generate a custom report. Use the following procedure to apply an existing query to a report.

1. Choose Reports | Choose Report.

   The Choose Report dialog box is displayed listing the reports pertaining to inventory and distribution.

2. From the list of Report Names, select the report to which you want to apply a query.

   Your selection is highlighted, and the Current Query field displays the name of the query currently applied to the selected report.

   NOTE: The <None> entry in the Current Query field indicates that no query is currently applied to the report.

3. Choose Select.

   The Select Query dialog box is displayed listing all queries. (Refer to "Creating a New Query" on page 146 for instructions on creating new queries if only the <None> entry appears in this list.)
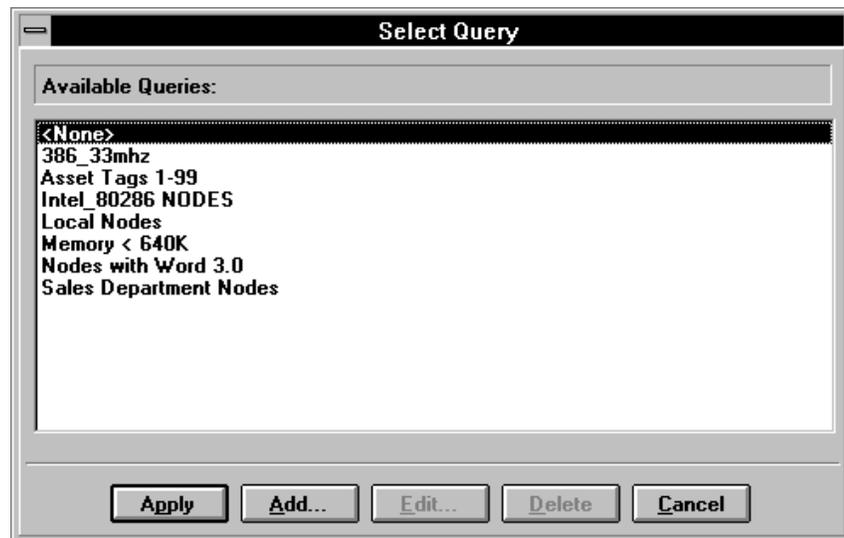
Figure 9-2: Selecting a Query to be Applied to a Report

4. Select the query name from the Available Queries list, and choose Apply.

   To select a query name, point to the query and click the left mouse button. Upon choosing Apply, the Select Query dialog box closes and the selected query name is placed into the Current Query field of the Choose Report dialog box. The LAN Inventory database records are sorted, and only the records that match the query's specified filter criteria will be included when the report is generated.

   NOTE: Before applying a query, ensure that the correct report name is highlighted in the Choose Report dialog box.

Removing a Query from a Report

Use the following procedure to remove a query from a report.

1. From the list of Report Names in the Choose Report dialog box, select the report for which you want to remove the query.

   Your selection is highlighted, and the Current Query field displays the name of the query currently applied to the selected report.

2. Choose the Select button to the right of the Current Query field.

   The Select Query dialog box is displayed.

3. Select the <None> query name, and choose Apply.

   The Select Query dialog box closes. The filter criteria is removed and all records that apply to the report will be included when the report is generated.

Creating a New Query

Use the following procedure to create a new query. This procedure assumes that you have already chosen Select in the Choose Report dialog box to display the Select Query dialog box.

NOTE: All queries are also available from the LAN Inventory software distribution feature when creating scopes, as discussed in *Using BrightWorks*.

1. Choose Add.

    The Add Query dialog box is displayed. Press the TAB key to move from field to field within this dialog box.
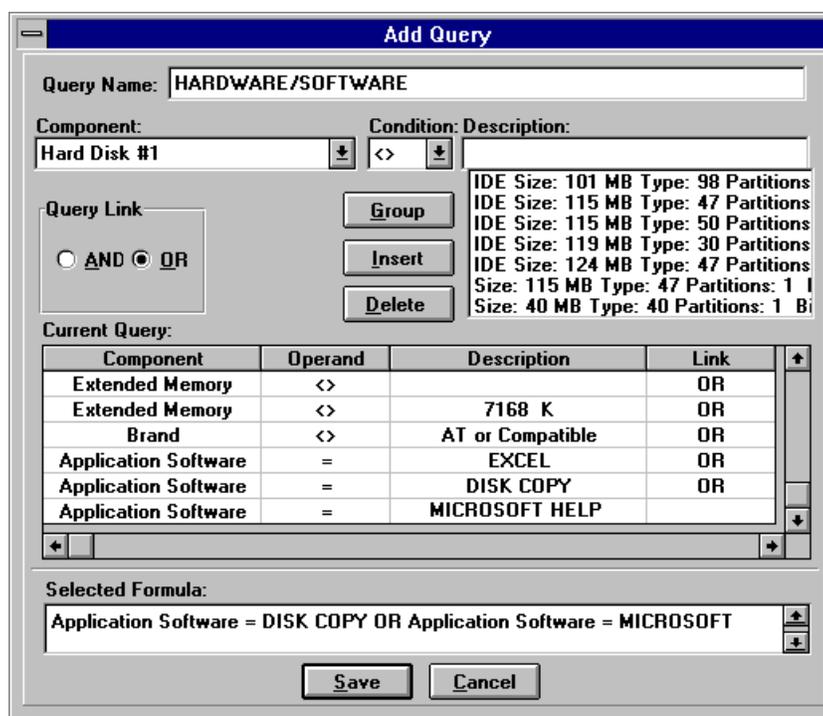
Figure 9-3: Defining a New Query

Feature	Description
Query Name	Displays the name by which the query is identified.
Component	Provides a list of all the component (database fields) upon which a report may be queried. Selecting a component from this combo-box will fill the Description combo-box with the records in that

	database for that particular component.
Operator	Provides a list of all the operations that may be performed on the Component field for the query.
Description	Provides a list of all the Component items available for the query.
Query Link	Offers optional AND and OR logicals to establish query links for the selected query item.
Group	When two or more query items are selected from the spread sheet control and the group button is pressed, the first selected item is assigned an open parenthesis and the last item is assigned a close parenthesis. This allows a greater flexibility in the selection of formulae.
Insert	Inserts the selected query item in the Current Query list box.
Delete	Deletes the selected query item from the Current Query list box.
Save	Clears the deleted items from the database, including all references to the query in the criteria database. Saves the new query in the database for future use.
Cancel	Resets any deleted flags from the queries that were selected for deletion; no queries are deleted from the database.
Selected Formula	Displays the current formula selection with the open and close parenthesis, indicating the exact record selection formula that will be used to generate the report.

2. Enter a Query Name and define a filter entry.

The purpose of each filter entry is to narrow down the list of records to be included in a report. If more than one filter entry is defined, the entries are "linked" using either the AND or OR relationship.

For example, assume the following two filter entries:

```
Central Processing Unit = Intel_80386
CPU Clock Frequency > 66.00 Mhz
```

If the entries are linked with the AND relationship, only the nodes that satisfy *both* criteria (i.e., the 80386 machines that have a clock speed greater than 66 Mhz) are included in the report definition.

If the entries are linked with the OR relationship, the nodes that satisfy *either* criteria (i.e., all Intel 80386 machines and all machines that have a clock speed greater than 66 Mhz) are included in the report definition.

For each filter entry, specify the following:

Entry	Description
Query Name	Enter a query name up to 80 characters in length.
Component	Choose a component from the LAN Inventory database to use as the filter basis. Select a component from the drop-down list associated with this field (e.g., Brand, Computer Model, CPU Clock Frequency).
Condition	Choose a conditional operator from the drop-down list associated with this field (e.g., equal to, less than, greater than, not equal to). 'Equal to' is the default condition.
Description	If desired, choose a description of the component. The items which automatically display in this list depend on the selected component. For example, "Intel_80386" might display if Central Processing Unit is entered in the Component field; "16.00 Mhz" might display if CPU Clock Frequency is entered in the Component field. See Note (a) below.
Query Link	Specify the relationship between the filter entries (e.g., Central Processing Unit = 80386 OR Central Processing Unit = 80486). The link options are AND and OR. below.

NOTE: The AND/OR links are logical links, and a formula must be carefully chosen to achieve the desired effect.

3. Choose Insert to accept the filter entry definition.

    The entry is added to the Current Query list in the Edit Query dialog box.

4. If required, insert additional filter entries.

    Repeat steps 2 and 3 above.

NOTE: To add a filter entry between existing entries, first highlight the filter entry line in the Current Query list where you want the new entry to be placed. The new defined entry is placed in the highlighted position.

5. When all filter entries are defined, choose Save.

    The query is saved and added to the Available Queries list in the Select Query dialog box. The new query can now be applied to a report.

Editing a Query

Use the following procedure to edit the definition of an existing query. This procedure assumes that you have already chosen Select in the Choose Report dialog box to display the Select Query dialog box.

1. Select a query from the Select Query dialog box, and choose Edit.

    The Edit Query dialog box is displayed showing the query's filter entries.
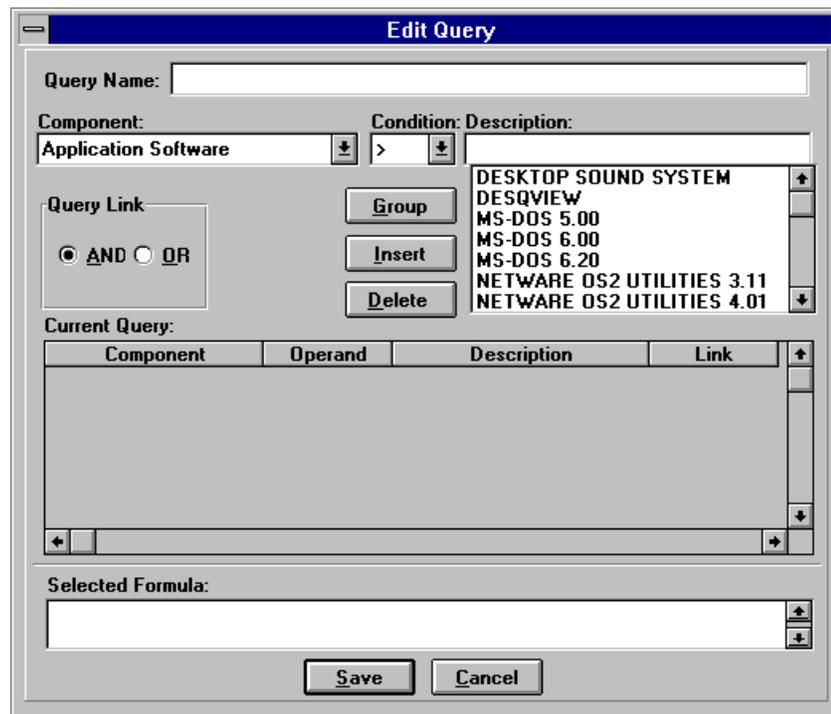
Figure 9-4: Editing Query Filters

2. Modify the information, and choose Save.

    For instructions on modifying the filter entries, follow the procedure above entitled "Creating a New Query."

    To delete a filter entry, highlight the entry in the Current Query List and choose Delete.

    NOTE: To add a filter entry between existing entries, first highlight the filter entry line in the Current Query List where you want the new entry to be placed. The new defined entry is placed in the highlighted position.

Deleting a Query

Use the following procedure to delete an existing query.

1. Choose Select in the Choose Report dialog box.

    The Select Query dialog box is displayed.

2. Select the query to be deleted from the Select Query dialog box.

3   Choose Delete.

    A prompt displays asking you to verify the delete action. Choose Yes to delete
    the query. The query is removed from the Available Queries list.

    NOTE: Queries that are currently applied to a software distribution scope
    and/or inventory/distribution report can be deleted.

Adding New Reports

Additional reports can be incorporated into the LAN Inventory system by using the
Crystal Reports software.

NOTE: The Crystal Reports software is installed with LAN Inventory. A Crystal
Reports program icon is added to the McAfee Program Manager group. Procedures
for using Crystal Reports are presented in the original install group.

You can run the Crystal Reports executable (CRW.EXE) by choosing Reports | Edit
Reports.

Adding Reports

New reports created using the Crystal Reports software can be added into LAN
Inventory by using the following procedure. All report files (.RPT) must be located
in the LAI.320\CRYSTAL program directory.

1. Choose Reports | Choose Report.

    The Choose Report dialog box displays.

2. Choose New.

    The New Report dialog box is displayed.
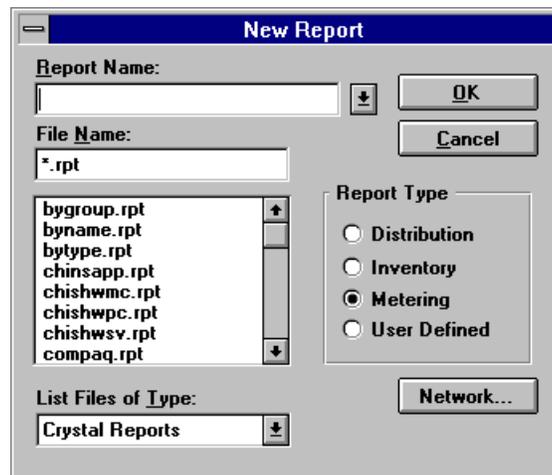
Figure 9-5: New Report dialog box

3. Enter the Report Name of the report to be added.

    The name entered in this field is the name that will display in the Choose Report
    dialog box.

4. Select the File Name.

    Select the .RPT file name to be added into LAN Inventory. (The .RPT files that
    display are located in the LAI.320\CRYSTAL program directory.) The selected
    file will be associated with the Report Name entered in the above step.

5. Select the desired radio button in the Report Type group box.

    Select one of the following:

    -   Distribution

    -   Inventory

    -   Metering

    -   User Defined

6. Choose OK to exit the dialog box and add your new report.

Renaming Added Reports

Use the following procedure to rename a Crystal report that has been added into LAN Inventory.

1. Choose Reports | Choose Report.

   The Choose Report dialog box displays.

2. From the list of Report Names, select the report to be renamed.

3. Choose Rename.

   The Edit dialog box displays prompting you to enter a new report name.

4. Enter the new report name.

5. Choose OK to save changes and return to the Choose Reports dialog box.

   The new report name displays in the Choose Report dialog box, and the old name is removed. All attributes of the old report are preserved in the renamed report (i.e., the report contents do not change).

Deleting Reports

Use the following procedure to delete a Crystal report that has been added into LAN Inventory.

NOTE: A pre-defined LAN Inventory report style sheet cannot be deleted; however, a report that was created using the Crystal Reports software and then added into LAN Inventory can be removed.

1. Choose Reports | Choose Report.

   The Choose Report dialog box displays.

2. From the list of Report Names, select the report to be deleted.

3. Choose Delete.

   A prompt displays asking you to confirm the deletion.

4. Choose Yes to delete the report.

   If deleted, the report name is removed from the Choose Report dialog box.

Appendix A *Equipment Database*

This appendix discusses and provides examples of the following:

- equipment inventory record types and their contents

- information collected by the EQUIP.EXE program

Equipment Inventory Records

Equipment inventory records are displayed by choosing the Inventory command from the View menu. The detailed inventory information that displays for each record depends on the record type. Record types consist of file server, MAC, PC workstation, and spare parts. The fields displayed for each type are listed below:

Field	Description
Fields Displayed For File Servers	Computer Information (Serial Number, Network Operating System, CPU, Memory), Volumes, Physical Drives, LAN Adapter Information, Software Applications, Miscellaneous Equipment
Fields Displayed For MACs	Computer Information (Appletalk Version, CPU, Finder Version, Floating Point Unit, Keyboard, Memory, Model, ROM Size, ROM Version, System Version), Slot Adapter/Drivers, Monitors, Floppy Drives, Mounted Volumes, SCSI Devices, Software Applications, Miscellaneous Equipment
Fields Displayed For PC Workstations	Computer Information (Model, Bios, Bios Date, Brand, BUS, CMOS, Clock Frequency, CPU, Operating System and Version), Mass Storage, Keyboard/Display, Ports, Network Adapter, Memory, Software Applications, System Files. Miscellaneous Equipment
Fields Displayed For Spare Parts	Computer Information (Memory, CPU, Serial Number, Network Operating System), Miscellaneous Information

Appendix B Troubleshooting

Appendix A provided information about LAN Inventory's equipment databases. This appendix provides a listing of LAN Inventory's error messages and their explanations.

Error Messages

Add Inventory - This Field Cannot be Left Empty

The Site field must contain information.

Audit Not Completed On Site

The audit was not successfully completed.

Btrieve Error

All Btrieve errors are reported by a number. Refer to Appendix E to discover the reason for the error.

Cannot Copy File - Source File

The source file names for saving the baseline may not be set properly; there may not be enough disk space; you may not have sufficient rights to the destination directory; or the files might be flagged as Read Only.

Cannot Create File - Target File

The target file(s) for saving the baseline could not be created. Check rights and disk space/directory entries.

Cannot Delete a Pre-Defined Report

The reports that are provided with BrightWorks cannot be deleted.

Cannot Initialize Btrieve

Btrieve failed to initialize; check available memory.

Cannot Initialize Libraries

DATALIB and/or WNCFS DLL's are missing. Check available memory.

Cannot Re-Define this Report

The reports that are pre-defined and provided with BrightWorks cannot be redefined. Try saving the report under a different name.

Could Not Access Shell Network Information

Your network is not responding. You must reboot the machine and retry the operation..

Could Not Create ID File

The file that generates IDs for stand-alone equipment could not be created. Check that the diskette is not write protected.

Could Not Login to Server

The name/password you entered is invalid.

Delete Unidentified Software - This Item is in the Transfer List - Delete it First.

A software title that is included in the transfer list was selected to be deleted. It must first be removed from the transfer list.

Entry Is Reserved for Fusion Use, Cannot Edit Entry

Some Categories, Classes and Types are reserved for BrightWorks use and cannot be edited or deleted. The following fields cannot be left blank:

- Category

- Class

- Manufacturer

- Product Name

For PC and MAC Software Lists, the following fields cannot be left blank:

- Product Name

- File Name/File Creator

- File Size

- Version Number

Error # Deleting Report

The system encountered the specified error attempting to delete a report.

Error #: Server "server name"

A network error occurred on the specified server. Consult NetWare documentation for a description of the error number.

Error Allocating Global Memory

BrightWorks could not allocate extra memory to store system files.

Error Reading Audit Parameters

The file WAUDCFG.DAT, which contains the Audit parameters, could not be read.

Error Removing Alert Timer

The system was unable to remove the timer for alerting.

Error Removing Audit Timer

The system was unable to remove the timer for an automatic audit.

Field Type Do Not Match

The BrightWorks field format (character or numeric) and the field to be imported format differ.

File 'WEQTRNA.DXT' Could Not be Found

The path specified to load stand-alone equipment from does not contain this file, which is needed for the stand-alone hardware.

Invalid Hour Entry

Entry must be in the range 12 AM- 12 PM.

Invalid Minutes Entry

Entry must be in the range 0- 59.

Local Site Already Has This Name

The name you entered is already assigned to the local site. Select a different Site name.

Local Site Cannot be Deleted

The Site name you wish to delete is the name of the local site and cannot be deleted.

Local Transaction Files Could Not be Found

The directory from which BrightWorks is running does not have the local transaction files to which stand-alone information should be loaded. To solve this, you need a search drive set up to BrightWorks.

Login Name Cannot Be Left Empty

The Login Name field cannot be empty when specifying access to a server.

Macintosh Update Aborted

The Macintosh update was aborted at user's request.

Memory Allocation Error

The system was unable to allocate memory for the specified operation. Close one or more applications and try the operation again.

NetWare Error

Could not attach to server due to one of the following:

- a hardware error

- the 8 server slots are in use

- the maximum number of users for the server has been reached

No Data For This Report

There was no data satisfying the filtering conditions set in the report.

No Fields Selected

At least one field must be selected to print for the Custom Report or the Detailed Equipment Report.

No Fileservers Specified

No servers were included in the Audit.

No Sites Specified

No sites were specified in the Scope of Audit.

Not Enough Disk Space Available

The collector diskette does not have the space needed for stand-alone files.

Option Available Only from Menu Bar (Delete Component)

When creating new equipment components, bringing up the list of components, the user cannot delete an existing component.

Path Name Cannot be Left Empty - Edit Site

The Path Name must contain information when editing sites.

Path Name is Already in Use

Sites must be assigned unique path names.

Product has Not been Installed

BrightWorks needs to be properly installed following the instructions in Chapter 2 of this manual. If the program has been properly installed, run CIN.EXE to re-enable BrightWorks.

Required Fields Are Missing

One or more of the fields that uniquely identify a workstation are missing: site nodeid_1 - nodeid_2 - name.

Selected Fields Will Not Fit on Page

Using the current page set-up, the fields that have been selected for printing will not fit across the page. Either select a smaller font, set a smaller maximum field width, select the "One Field Per Line" option, or select fewer fields to print.

Server Update Aborted

Server update aborted at user's request.

Server Update Not Completed

File Server information was not updated in the transaction file due to one of the following reasons:

- The file WSERVER.DAT (containing the list of servers) could not be read

- No servers were included in the Scope of Audit

- No unique ID could be determined for that server

Site Name Cannot be Left empty - edit site

When editing a Site, the Site field must contain information.

Source File Not Specified

When backing up the baseline, the source baseline file must be specified.

Supervisor Rights Required

Supervisor rights or equivalent are needed to run an audit on a server.

System Files To Audit - This is Not a Valid File Name

A valid file name is up to 14 characters long; the period is required.

The Transaction File Is Empty

The transaction file is empty due to one of the following reasons:

- EQUIP has not been run

- MAC files were not loaded into the transaction files

- Stand-alone equipment has not been loaded

- The file server information update failed

There is no Audit Selected

When running the Audit Results Report, a specific audit must be selected.

Transfer Unid Software as Group - Base Name / Version No. Already In Use

The combination of base name / version no is in use by another software title.

Unable to Configure Printer

The system was not able to initialize the printer. Make sure that a printer is set up for Windows and the correct driver is present in the Windows system directory. If necessary, delete the file WLAI.INI from the Windows directory and try to print again.

Unable to Create Timer Window

The system was unable to create the timer window for an automatic audit or alerting. This is probably due to low memory or system resources. Close one or more applications and try the operation again.

Unable to Create Window

The system was unable to create a window. This is probably due to insufficient memory or system resources. Close one or more applications and try the operation again.

Unable To Determine Unique ID

The file that stores the unique file server ID, which is in the SYS:SYSTEM dir as a hidden file called LAIID.CFG, could not be created or opened. If the hidden file is zero bytes, delete it and try again.

This message might also appear if the number of files in use exceeds the maximum number specified in the CONFIG.SYS file (usually when the user is running other Windows or DOS applications).

Unable to Initialize NetWare Structures

Your network is not responding. You must reboot the machine and retry the operation.

Unable to Initialize Timer

The system was unable to initialize the internal timer used to track automatic audits and alerts. This is probably caused by other applications using all system timers. Close an application that uses a timer and try the operation again.

Unable to Open Export File

The user must have write/create rights, and there must be enough disk space to create the export file. If you are trying to export to a root directory, try exporting to a sub-directory instead.

Unable to Open File

The system was not able to open the specified file. Make sure that a valid directory was specified and that the user has sufficient rights to this directory.

Unable to Open Import File

The file selected to be imported could not be opened. The file could be corrupted.

Unable to Open Report Files

The system was not able to open the files which contain the data being reported.

Unable to Retrieve Report Information

The system was not able to open or read one or more of the files required to run the specified report. Before creating reports, you must run an audit and have data in your baseline.

Unable to Write to Temporary File

There is not enough disk space for the temporary file. Free up some space, and then run the report again.

Installation

If you receive any errors while installing or upgrading LAN Inventory, display the log file to view the errors and possible solutions.

Error calling DLL function. This indicates that install was unable to find PROGLIB.DLL or NETWARE.DRV didn't load or wasn't configured in your SYSTEM.INI file.

This could happen if the NetWare shell was not loaded before running Windows or if the wrong NetWare driver was loaded for Windows. Please refer to the installation requirements in this manual. Also, make sure:
-The shells are loaded.

-The following line is included in your SYSTEM.INI file in the [386Enh] section: network=*vnetbios, vnetware.386, vipx.386

-You have Write and Modify rights to your Windows directory.

Install requires temporary storage on your hard drive, approximately 300K bytes. There is not enough space on your XXXX.

XXXX is the drive name specified. This message will display if the drive you specified does not have the space required to run the installation program.

Unable to copy or decompress file: FILENAME. Make sure that you have permission to write to the designated path and that you included the drive letter and that there is enough space on the destination disk.

FILENAME is the file to be copied or decompressed. This message will display if 1) you do not have the write permission 2) there is not enough space on the destination disk or 3) the volume (i.e., SYS) that the install is trying to write to does not exist. Log in as supervisor or equivalent.

Install did not find a previously installed copy of XXXXXX in YYYYYY. Choose OK to choose another path.

XXXXXX is the name of the product which you want to upgrade. YYYYYY is the name of the path you gave for the install to check for the previously installed product. This message will display if the install did not find the previously installed product which you want to upgrade in the path you specified. Make sure you give the correct path to the install to find the previously installed product for upgrading.

This installation failed. Please run the install again to be sure that LAN Inventory is installed correctly. Choose OK to exit install and view the install log file.

This message will display when the installation has encountered severe problems and has aborted. A log file may have the error message. Use Windows Notepad utility to view this file. Make the required change and then run the install again.

Fatal Error: [Error #]

Verify that you meet the LAN Inventory configuration requirements and then contact McAfee Technical Support with the Error #.

Appendix C *Using Brequest*

Appendix B discussed error messages and explanations. This appendix discusses the use and configuration of the server-based Btrieve record manager, BREQUEST.

Using the Btrieve NLM

The Btrieve record manager must be loaded before running the LAN Inventory EQUIP program. It is highly recommended that you use the server-based BREQUEST program while running EQUIP. This appendix offers recommendations on setting up and using the Btrieve NLM.

NOTE: When using BREQUEST, version 6.10 or greater is required. When using BREQUEST, BSPXCOM and BROUTER must also be loaded on the fileserver. For details on loading these programs, refer to your Novell documentation.

Using the NLM with EQUIP

Using BREQUEST, as opposed to BTRIEVE, will improve the performance of data collection and reporting by at least 50% and as much as 500%. An additional advantage is the savings in local (client) memory—BTRIEVE.EXE can occupy from 50-85K of conventional memory, whereas BREQUEST.EXE can occupy approximately 31-45K. The exact amount of memory required for both programs depend on the specified command line parameters.

Use the following procedure to configure the Btrieve NLM.

1. To configure the NLM, run BSETUP.NLM.

    At the file server console prompt, type:

    `LOAD BSETUP <ENTER>`

2. Choose Set Btrieve Configuration to verify that the following options are defined.

    The values provided below are the minimum values required; your current values may be set higher.

    *   Files: = 500

- Number of Open Files: = 22 (default = 20)

- Number of Transactions: = 1 (default = 0)

- Largest Record Size: = 17000 (default = 8192)

- Largest Page Size: = 4096 (default = 4096)

All other BSETUP options can remain unchanged.

3. Save the configuration, and exit BSETUP.

   BSETUP writes the configuration changes to the BSTART.NCF file. The changes do not take effect until the next time the Btrieve NLM is loaded.

4. To load the NLM, run BSTART.

   At the file server console prompt, type:

   ```
   BSTART <ENTER>
   ```

   BSTART is an NCF file which loads both BTRIEVE.NLM and BSPXCOM.NLM (and potentially BROUTER.NLM).

   NOTE: For version 6.0, BSETUP has an option to load BROUTER. If this option is selected, BROUTER is loaded but without the -d=17000 option. You need to manually add this option to BROUTER in the BSETUP.NCF file.

5. To unload the Btrieve NLM, issue the BSTOP command.

   If the Btrieve NLM was loaded when changes were made in BSETUP, you need to unload Btrieve and then reload the NLMs in order for the changes to take effect.

   For example, at the console prompt, type:

   ```
   BSTOP <ENTER>
   ```

   ```
   BSTART <ENTER>
   ```

Using Brequest in a Login Script

To ensure that EQUIP is executed on a regular basis, the EQUIP command can be placed in your system login script. Because the Btrieve database must be loaded before running EQUIP, a Btrieve command must also be placed in the login script. EQUIP executes much faster when used in conjunction with Brequest and the BTRIEVE NLM; therefore, the login script should contain the BREQUEST.EXE command.

The following example illustrates how EQUIP can be run from the system login script, using BREQUEST. Comments are indicated in the text between the angle brackets.

```
MAP F:=FS/SYS:LANINV <maps drive to LAI.320 dir>
DRIVE F: <changes to the LAI.320 dir>
#BREQUEST /D:17000
#EQUIP <specify scan parameters>
#ENDBTRV
```

Loading SPX

LAN Inventory requires SPX to be loaded at each workstation. Brequest communicates with BSPXCOM.NLM via SPX. BSPXCOM, in turn, passes all requests from Brequest to the BTRIEVE NLM. If SPX is not loaded at a workstation, that workstation has no communication whatsoever with the Btrieve record manager. If you have loaded Brequest and are getting "BTRIEVE Record Manager Not Loaded" messages, make sure that SPX is loaded. This normally only becomes an issue on workstations that load the ODI drivers because the ODI drivers can optionally load SPX.

Brequest /D Switch

The /D: parameter specifies the size of the "data message buffer length." This buffer refers to the maximum record size that the NLM will transmit to the workstation. This switch should be set to 17000 for the purposes of LAN Inventory.

Brequest /L switch

When running SDUPDATE.EXE in a DOS box, you must load another session of BREQUEST by entering the following command:

    BREQUEST /D:17000 /L

After running the program, end the additional session by issuing the ENDBTRV Brequest Error 87

If you receive an "Error 87" from Btrieve while using Brequest, increase the 'Number Of Open Files' setting in BSETUP.

Appendix D *B*trieve Status Codes

Appendix C described how to configure and use Btrieve. This appendix lists the return status codes for Novell's Btrieve Record Manager.

Btrieve Status Codes

Btrieve returns a status code after each operation an application performs. If the operation was successful, Btrieve returns status code 0. If the operation was not successful, Btrieve will return one of the nonzero status codes described in this section.

If Btrieve returns a code that is not contained in this section, refer to your Btrieve Installation and Operation Manual for error codes from the utilities.

01 INVALID OPERATION

The operation parameter specified in the call is invalid.

02 I/O ERROR

An error occurred during disk read/write. This status code indicates that the file has been damaged and must be recreated, or that the file specified on the open call was not created. This status code also occurs if the application passed an invalid position block.

03 FILE NOT OPEN

The operation cannot execute because the file is not open. A successful Open operation must be performed before Btrieve can process any other operations. This status code may also occur if the application passed an invalid position block for the file.

04 KEY VALUE NOT FOUND

The specified key value in the index path was not found.

05 DUPLICATE KEY VALUE

A record with a key field containing a duplicate key value cannot be added to an index that does not allow duplicate values.

06 INVALID KEY NUMBER

The value stored in the key number parameter was not valid for the file being accessed. The key number must correspond to one of the keys defined when the file was created or to a supplemental index.

07 DIFFERENT KEY NUMBER

The key number parameter changed before a Get Next, Get Next Extended, Get Previous, Get Previous Extended, Update, or Delete operation. The operation specified requires the same key number parameter as the previous operation because Btrieve uses positioning information relative to the previous key number.

If you need to change key numbers between consecutive Get Next, Get Next Extended, Get Previous, or Get Previous Extended operations, use a Get Position operation followed by a Get Direct operation to re-establish positioning for the new index path.

08 INVALID POSITIONING

The current position must be established to update or delete a record. Perform a Get or Step operation to establish the current position. This status code may also occur if the application passed an invalid position block for the file.

09 END-OF-FILE

The operation tried to read past the file boundaries (end-of-file or start-of-file). When reading a file in ascending order according to an index path, Btrieve returns the last record in that index path. When reading a file in descending order according to an index path, Btrieve returns the first record in the index path.

The Get Extended and Step Extended operations return this status code if the number of records satisfying the filtering condition is less than the number of specified records to be returned and the reject count has not been reached.

10 MODIFIABLE KEY VALUE ERROR

The operation tried to modify a key field which is defined as non-modifiable.

11 INVALID FILENAME

The filename specified does not conform to file naming conventions.

12 FILE NOT FOUND

The filename specified does not exist. Check the key buffer parameter to make sure the pathname is terminated with a blank or a binary zero.

13 EXTENDED FILE ERROR

Btrieve could not find the extension file for an extended file which the application tried to open. Extension files must be loaded on the logical disk drive specified when the extension was created. Both the primary file and its extension file must be on-line to access an extended file.

14 PRE-IMAGE OPEN ERROR

The pre-image file could not be created or opened. There are three possible causes for this error.

- Btrieve could not create a new pre-image file because your disk directory is full. Btrieve must be able to create a pre-image file.

- Btrieve could not open the pre-image file to restore file integrity. If the pre-image file was erased or damaged, Btrieve cannot restore the file's integrity. In this case, either use the RECOVER command in the BUTIL utility to retrieve the damaged file's data records in a sequential file, or replace the file with its most recent backup.

- Btrieve could not assign a handle to the pre-image file because the Btrieve was not started by a user with access rights to the pre-image file.

15 PRE-IMAGE I/O ERROR

An I/O error occurred during the pre-imaging function. Either the disk is full or the pre-image file is damaged.

- If the disk is full, erase any unnecessary files or extend the file to gain additional disk space.

- If the pre-image file is damaged, the integrity of the Btrieve file cannot be ensured. Either use the RECOVER command in the BUTIL utility to retrieve the damaged file's data records in a sequential file, or replace the file with its most recent backup.

16 EXPANSION ERROR

An error occurred while writing the directory structure to disk prior to the creation of the expanded file partition. Either Btrieve could not close the file, or a new page was added to the file and Btrieve could not close and reopen the file to update the directory structure. Check for a disk hardware failure.

17 CLOSE ERROR

An error occurred while writing the directory structure to disk prior to closing the file. Either Btrieve could not close the file, or a new page was added to the file and Btrieve could not close and reopen the file to update the directory structure. Check for a disk hardware failure. This status code also occurs if the application passed an invalid position block for the file.

18 DISK FULL

The disk is full and the file could not be expanded to accommodate the insertion. Either erase any unnecessary files or extend the file to gain additional disk space.

19 UNRECOVERABLE ERROR

An unrecoverable error has occurred. File integrity cannot be ensured. Either use the RECOVER command in the BUTIL utility to retrieve the damaged file's data records in a sequential file, or replace the Btrieve with its most recent backup.

20 RECORD MANAGER INACTIVE

A request has been made before the Record Manager has been started. Restart the Record Manager.

In network environments, the operation was not processed because BREQUEST was not loaded. Reload BREQUEST.

21 KEY BUFFER TOO SHORT

The key buffer parameter was not long enough to accommodate the key field for the index path requested. Verify that the length of the key buffer equals the defined length of the key specified in the key number parameter. This status code can be returned only by certain interfaces.

22 DATA BUFFER LENGTH

The data buffer parameter was not long enough to accommodate the length of the data record defined when the file was created. Verify that the length of the data buffer is at least as long as the file's defined record length.

- For *Get* or *Step* operations, if the data buffer is too short to contain the fixed length portion of the record, Btrieve does not return any data to the data buffer. If the record is a variable length record and the data buffer is too short to contain the entire variable length portion of the record, Btrieve returns as much data as it can and a status code 22, indicating that it could not return the entire record.

- For the *Insert* operation, Btrieve does not insert the record if the data buffer is shorter than the fixed length portion of the record.

- For the *Update* operation, if the data buffer is too short to contain the fixed length portion of any record, Btrieve does not update the record.

- For the *Create*, *Stat*, and *Create Supplemental Index* operations, a status code 22 indicates that the data buffer is not long enough to contain all the file and key specifications, and the alternate collating sequence definition, if specified.

23 POSITION BLOCK LENGTH

The position block parameter was not 128 bytes long. This error can only be detected using certain language interfaces.

24 PAGE SIZE ERROR

The page size was invalid. The page size must be a multiple of 512 bytes but must be no larger than 4096 bytes. To solve this, run or load BSETUP at the server. Change the page size to 4096 and the largest record size to 17000. See Appendix C for more information.

25 CREATE I/O ERROR

The file specified could not be created. Possible causes are a full disk directory or a full disk. If you are creating a file over an existing file, Btrieve returns this status code if the existing file is open or the operating system does not allow the creation for some other reason (for example, a NetWare file is flagged transactional).

26 NUMBER OF KEYS

The number of keys specified for the page size was invalid. For standard Btrieve files with a page size of 512 bytes, the number of key segments must be between 1 and 8. For larger page sizes, the number of key segments must be between 1 and 24. You must define at least one key without the null attribute.

27 INVALID KEY POSITION

The key field position specified exceeded the defined record length for the file. Either the key position was greater than the record length or the key position plus the key length exceeded the record length. For key-only files, the key must begin in the first byte of the record (position 1).

28 INVALID RECORD LENGTH

The record length was invalid. The record length specified (plus overhead for duplicates) must be less than or equal to the page size minus 6 or greater than or equal to 4 bytes long.

29 INVALID KEY LENGTH

The key length was invalid. The key length specified must be greater than zero and cannot exceed 255. The length of a binary key must be even. Btrieve requires that each key page in the file is large enough to hold at least eight keys.

If the page size is too small to accommodate eight occurrences of the specified key length (plus overhead), either increase the file's page size, or decrease the key length.

30 NOT A BTRIEVE FILE

The filename specified is not a valid Btrieve file. Either the file was not created by Btrieve, or it was created by an earlier version of Btrieve.

Another possibility is that the first page of the file, which contains the File Control Record, is damaged.

31 FILE ALREADY EXTENDED

The file specified has already been extended. A file can be extended only once.

32 EXTEND I/O ERROR

The file could not be extended. Possible causes are that the directory is full, the disk is full, or the disk is write protected.

34 INVALID EXTENSION NAME

The filename specified for the extended partition was invalid.

35 DIRECTORY ERROR

An error occurred while changing to the directory that contains the Btrieve file. Either the drive specified in the Get Directory operation does not exist or the pathname specified in a Set Directory operation was invalid.

36 TRANSACTION ERROR

A Begin Transaction operation could not be performed because no transactions were specified when the Btrieve was initialized.

37 TRANSACTION IS ACTIVE

A Begin Transaction was issued while another transaction was active at that station. Transactions cannot be nested.

38 TRANSACTION CONTROL FILE I/O ERROR

An error occurred when Btrieve tried to write to the transaction control file. Possible causes were that the disk was full, the disk was write protected, or the transaction control file (which was created when the Btrieve was loaded) was deleted.

39 END/ABORT TRANSACTION ERROR

An End or Abort Transaction operation was issued without a corresponding Begin Transaction operation.

40 TRANSACTION MAX FILES

The application tried to update more than the maximum number of files allowed within a transaction. The maximum number of different files that can be updated during a logical transaction is set when Btrieve is configured. Refer to your *Btrieve Installation and Operation manual* for more information on configuration.

41 OPERATION NOT ALLOWED

The application tried to perform an operation that is not allowed at this time. Some operations are not allowed under certain operating conditions. For example, Btrieve returns this status code if you attempt to perform a Step, Update, or Delete operation on a key-only file or a Get operation on a data only file.

Also, certain operations are prohibited during transactions because they have too great an effect on the pre-image file or on Btrieve's performance. These operations include Close, Set or Clear Owner, Extend, Create Supplemental Index, and Drop Supplemental Index.

42 INCOMPLETE ACCELERATED ACCESS

The application tried to open a file that was previously accessed in accelerated mode and never successfully closed. The file's integrity cannot be ensured. Either use the RECOVER command in the BUTIL utility to build a new file or restore the file using the latest backup.

43 INVALID RECORD ADDRESS

The record address specified for a Get Direct operation was invalid. The address is outside of the file's boundaries; it is not on a record boundary within a data page, or on a data page. The 4-byte address you specify for a Get Direct operation should be one that was obtained by a Get Position operation.

44 NULL KEY PATH

The application tried to use the Get Direct operation to establish an index path for a key whose value is null in the corresponding record. Btrieve cannot establish positioning based on a null key value.

45 INCONSISTENT KEY FLAGS

The key flags specification on a Create operation was inconsistent. If a key has multiple segments, the duplicate, modifiable, and null attributes should be the same for each segment in the key.

46 ACCESS TO FILE DENIED

The application opened a file in read-only mode and tried to perform an Update, Delete, or Insert on that file. Another possible cause is that the owner name required for updates was not specified correctly when you opened the file.

47 MAXIMUM OPEN FILES

The number of files opened in accelerated mode exceeded the number of buffers available in Btrieve's cache. When a file is opened in accelerated mode, Btrieve reserves one of its cache buffers for the file.

Btrieve always reserves five empty buffers for index manipulation. Reconfigure the Btrieve Record Manager with a smaller page size parameter to allocate more buffers.

48 INVALID ALTERNATE SEQUENCE DEFINITION

The first byte of an alternate collating sequence definition (the identification byte) did not contain the hexadecimal value AC.

49 KEY TYPE ERROR

The application tried to create a file or a supplemental index with an invalid extended key type, or tried to assign an alternate collating sequence to a binary key or key segment. You can only assign an alternate collating sequence to a string, lstring, or zstring key type.

This status code is also returned if you define a supplemental index requiring an alternate collating sequence, and no alternate collating sequence definition exists either in the file or in the key definition passed in the data buffer.

50 OWNER ALREADY SET

The application tried to perform a Set Owner operation on a file that already has an owner. Use the Clear Owner operation to remove the previous owner before specifying a new one.

51 INVALID OWNER

There are two possible causes for this status code:

- If your application received this status code after a Set Owner operation, the owner names specified in the key buffer and data buffer did not match.

- If your application received this status code after an Open operation, the file you tried to open has an owner name assigned to it. Your application must specify the correct owner name in the data buffer.

52 ERROR WRITING CACHE

While trying to make a cache buffer available, Btrieve tried to write data to a logical disk drive from a file that was previously opened in accelerated mode. An I/O error occurred during a write.

53 INVALID INTERFACE

An application tried to access a file containing variable length records with a language interface from Btrieve v3.15 or earlier. To access files with variable length records, you must use v4.xx or later interface.

54 VARIABLE PAGE ERROR

During a Step Direct operation, Btrieve could not read all or part of the variable length portion of a record. In this case, Btrieve returns as much data as possible to your application. This error usually indicates file damage to one or more pages in the file.

55 AUTOINCREMENT ERROR

The application tried to specify either the segmented or duplicate attribute for an autoincrement key type. An autoincrement key cannot be part of another key and cannot allow duplicates.

56 INCOMPLETE INDEX

A supplemental index was damaged. This can occur if a Create Supplemental Index operation or a Drop Supplemental Index operation is interrupted and does not run to completion. Perform a Drop Supplemental Index operation to completely remove the index from the file.

57 EXPANDED MEMORY ERROR

This error is applicable only in the client-based DOS environment. Btrieve returns this status if it receives an error from the Expanded Memory Manager. This error usually means that Btrieve was unable to save or restore the memory mapping register context, indicating an incompatibility with another application that uses expanded memory.

58 COMPRESSION BUFFER TOO SHORT

The application tried to read or write a record that is longer than the value specified for the size of the compression buffer. Reconfigure the Btrieve Record Manager, specifying a higher value for the "Maximum Compressed Record Size" option.

59 FILE ALREADY EXISTS

This status code is returned for the Create operation if you specified -1 in the key number parameter and the name of an existing file in the key buffer parameter.

60 REJECT COUNT REACHED

Btrieve rejected the number of records specified by the reject count before an Extended Get/Step operation found the requested number of records which satisfy the filtering condition. Check the first two bytes of the data buffer returned for the number of records that were retrieved.

61 WORK SPACE TOO SMALL

The Extended Get/Step operations use the pre-image buffer as work space. This error code indicates that the work space was not large enough to hold the filtering data buffer structure and the largest record to be received. The size of the work space is configurable (see the *Btrieve Installation and Operation manual* for more information). Check the first two bytes of the data buffer returned for the number of records that were retrieved.

62 INCORRECT DESCRIPTOR

The descriptor (data buffer structure), which is passed for an extended Get or Step operation, is incorrect.

63 INVALID EXTENDED INSERT BUFFER

Extended Insert provides an invalid buffer. Either the buffer length is less than five bytes, or the number of records specified is zero.

64 FILTER LIMIT REACHED

During an Extended Get Next/Previous operation, a rejected record was reached. Furthermore, this rejected record is such that no other record can satisfy the given filtering condition, going in the direction specified by the operation. This is applicable only if the key specified by the key number is also used as the filtering field.

65 INCORRECT FIELD OFFSET

The field offset in the extractor of an Extended Get/Step is invalid based on the length of the retrieved record.

74 AUTOMATIC TRANSACTION ABORT

This is an informative status code and is applicable only in the server-based environment. Btrieve replaced an End Transaction operation with an Abort Transaction because an error had been detected for a TTS file inside the transaction. In addition, Btrieve executed the Abort Transaction operation.

78 DEADLOCK DETECTED

Btrieve detected a deadlock condition. The application should clear all resources (such as aborting or ending the transaction or releasing all record locks) before proceeding. This allows the other applications to access the resources for which they are waiting.

80 CONFLICT

The Update or Delete operation could not be performed because the record was changed by another application since your application read the record. Reread the record prior to resending an Update or Delete operation.

81 LOCK ERROR

This error can result from one of two conditions:

- The Btrieve lock table was full. Decrease the number of locks that your application uses or reconfigure the Btrieve Record Manager and specify a higher value for the "Maximum Number of Record Locks" option.

- The application tried to unlock one record that was locked with a multiple record lock, and the record position stored in the data buffer did not correspond with any record that was locked in that file.

82 LOST POSITION

When performing a Get Next or Get Previous on a key with duplicates, the application tried to retrieve a record that was deleted or whose key value was modified by another application. Re-establish positioning using a Get Equal or a Get Direct operation.

83 READ OUTSIDE TRANSACTION

The application tried to delete or update a record within a transaction, but the record was not read within the transaction. If you are going to update or delete a record within a transaction, you must read the record within the transaction to ensure you have first obtained exclusive access to the data.

84 RECORD LOCKED

The application tried to apply a nowait lock on a record that was currently locked by another application, or to apply a nowait lock on a file while another application held active record lock(s) in that file.

If this status code is returned, your application can use either of the following two methods:

- Retry the operation until it is successful. Under light to moderate network use, this may be the simplest and quickest solution.

- Use the wait option (+100/+300) instead of the nowait option.

85 FILE LOCKED

The application tried to apply a nowait record or file lock while another application held the file locked. This status code is also returned when the application tries to open a file outside of a transaction and the file is locked by some other application.

If this status code is returned, your application can use either of the following two methods:

- Retry the operation until it is successful. Under light to moderate network use, this may be the simplest and quickest solution.

- Use the wait option (+100/+300) instead of the nowait option.

86 FILE TABLE FULL

Btrieve's file table was full. Reconfigure Btrieve and specify a higher value for the "Maximum Number of Open Files" option.

87 HANDLE TABLE FULL

This status code is applicable only in the server-based and Windows environments.

Btrieve's handle table was full. Reconfigure the Btrieve and specify a higher value for the "Maximum Number of File Handles" option.

88 INCOMPATIBLE MODE ERROR

The application tried to open a file in an incompatible mode. If the first application to access a file opens it in accelerated mode, all other applications must open it in accelerated mode. If the first application to access a file opens it in non-accelerated mode, other applications cannot open the file in accelerated mode.

90 REDIRECTED DEVICE TABLE FULL

This status code is applicable only in the server-based environment.

BREQUEST's redirection table or server routing table was full. This occurs if you attach to additional servers or map to additional drives after you loaded BREQUEST. Reload BREQUEST, specifying a larger number for the "Number of File Servers" or "Number of Mapped Drives" options (/S and /R respectively).

This error also occurs if you detach a particular server and attach to a different server. Once a workstation has attached to a server, BREQUEST will not remove its name from the server routing table.

91 SERVER ERROR

This status code is applicable only in the server-based environment.

BREQUEST could not establish a session with the server. In NetWare environments, either the NetWare Btrieve Record Manager has not been started or the server was not active. Verify that the NetWare Btrieve Record Manager is active on the server in question.

92 TRANSACTION TABLE FULL

This status code is applicable only in the server-based environment.

The maximum number of active transactions was exceeded. Reconfigure Btrieve and specify a higher value for the "Number of Concurrent Transactions" option.

93 INCOMPATIBLE LOCK TYPE

Your application tried to mix single record locks (+100/+200) and multiple record locks (+300/+400) in the same file at the same time. All locks of one type must be released before a lock of the other type can be executed.

94 PERMISSION ERROR

Your application tried to open or create a file in a directory without the proper privileges. Btrieve does not override the network privileges assigned to users.

95 SESSION NO LONGER VALID

This status code is applicable only in the server-based environment.

The previously established session was no longer active due to an error at the workstation, the file server, or on the network. Verify that your workstation is still attached to the file server and then reload BREQUEST.

96 COMMUNICATIONS ENVIRONMENT ERROR

This status code is applicable only in the server-based environment.

This code occurs when loading Btrieve on a NetWare server. The SPX connection table is full. Reload SPX, specifying a higher value for the connection table. Refer to the NetWare system documentation for more information.

97 DATA MESSAGE TOO SMALL

This status code is applicable only in the server-based environment.

Your application tried to read or write a record which was longer than the Btrieve Record Manager or BREQUEST could handle. Reconfigure the Btrieve Record Manager and specify a higher value for the "Maximum Record Length" option. Reload BREQUEST and specify a higher value for the /D option.

- For an Update, Insert, or Create operation, the application receives this error if the data buffer length it specifies for the record exceeds the length specified for the Btrieve Record Manager or BSERVER.

- For a Get, Step, or Stat operation, the application receives this error if the value specified for the data buffer length is shorter than the length of the data Btrieve would return, regardless of the data buffer length specified in the program.

98 INTERNAL TRANSACTION ERROR

This status code is applicable only in the server-based environment.

An error has been detected while executing a previous operation on a NetWare TTS file. Therefore, no operation other than Abort Transaction (21) is allowed at this point.

99 THE REQUESTER CANNOT ACCESS THE NETWARE RUNTIME SERVER

The DOS Requester returns this status code when NetWare Runtime server support is enabled (/C:1) and the Requester either detects no existing connection or cannot find a valid login username. If the Requester cannot find a login username other than SUPERVISOR, there is no valid name to pass.

100 NO CACHE BUFFERS ARE AVAILABLE

Btrieve has used all the cache buffers it allocated at load time. Using the Setup utility, you can increase the value for the Cache Allocation configuration option. Alternatively, you can change the Number of Remote Sessions configuration option to decrease the number of concurrent Btrieve users. For more information, refer to Chapter 3, "Installing and Configuring Btrieve," in the *Btrieve Installation and Operation* manual.

101 INSUFFICIENT OPERATING SYSTEM MEMORY IS AVAILABLE

There is not enough operating system memory available to perform the requested operation. Decrease the value for the Cache Allocation configuration option (using the Setup utility), decrease the number of concurrent Btrieve users (using the Number of Remote Sessions configuration option in the Setup utility), or add memory to the server. For more information on the configuration options, refer to Chapter 3, "Installing and Configuring Btrieve," in the *Btrieve Installation and Operation* manual.

102 INSUFFICIENT STACK SPACE IS AVAILABLE

Btrieve has run out of stack space. To increase the amount of stack space available to your application, relink the application, setting the stack size to a higher value. Only the NLM applications calling Btrieve on the local server get this message.

103 THE CHUNK OFFSET IS TOO BIG

A Get Direct/Chunk operation has specified an offset beyond the end of the record, either explicitly or through the use of the next-in-record bias to the subfunction value. Unless Btrieve returns this status while processing the first chunk, the operation was partially successful. Check the data buffer length parameter immediately after the call to see how much data (and therefore how many chunks) Btrieve retrieved.

This code can also be returned by the Update Chunk operation when the specified offset is more than one byte beyond the end of the record. However, in this situation, Status Code 103 indicates that Btrieve made no changes to the record.

104 THE LOCALE INFORMATION COULD NOT BE FOUND

The Create or Create Index function returns this status code to indicate that the operating system was not able to return a collation table for the country ID and code page specified. Check that the application specified the locale's country ID and code page correctly and that the operating system is configured to support the country ID and code page.

105 THE FILE CANNOT BE CREATED WITH VARIABLE-TAIL ALLOCATION TABLES (VATS)

The application specified that a Btrieve file should be created with Variable-tail Allocation Tables (VATs); however, the application failed to specify that the file was to use variable-length records (a precondition for files to use VATs). This status applies to key-only files as well as regular data files.

106 THE OPERATION CANNOT GET THE NEXT CHUNK

The application called the Get Direct/Chunk operation to retrieve a chunk from a record and used the next-in-record bias on the descriptor subfunction. However, after the application established its positioning in the record (but prior to this call), the target record was deleted.

107 CHUNK UPDATES/RETRIEVALS CANNOT BE PERFORMED ON THE FILE

The application tried to use either a Get Direct/Chunk operation or an Update Chunk operation on a pre-v6.0 formatted file.

Client-Based Btrieve for OS/2 & Windows Status Codes

Client-based Btrieve may return the following status codes in an OS/2 or Windows environment.

1001 THE MULTIPLE LOCKS OPTION IS OUT OF RANGE

The number specified for the Multiple Locks configuration option must be between 1 and 255, inclusive.

1002 BTRIEVE CANNOT ALLOCATE THE MEMORY NEEDED

Make sure that the workstation has enough memory to load all the programs it requires.

1003 THE MEMORY SIZE IS TOO SMALL

Make sure the value for the Memory Size configuration option is large enough to accommodate the required cache size.

1004 THE PAGE SIZE OPTION IS OUT OF RANGE

The value of the Page Size configuration option must be an even multiple of 512, and it must be between 512 and 4,096, inclusive.

1005 THE PRE-IMAGE FILE DRIVE OPTION IS INVALID

You must specify a valid drive letter for the Pre-Image File Drive configuration option.

1006 THE PRE-IMAGE BUFFER SIZE OPTION IS OUT OF RANGE

The Pre-Image Buffer Size configuration option must be between 1 and 64, inclusive.

Note to Error 1005 and 1006: Pre-image files are used only for files created by Btrieve versions earlier than v6.x, or by v6.x if it was loaded with the Create Btrieve Files in Pre v6.x Format configuration option set to Yes.

1007 THE OPEN FILES OPTION IS OUT OF RANGE

The Open Files configuration option must be between 1 and 255, inclusive.

1008 THE CONFIGURATION OPTIONS ARE INVALID

The configuration options specified contain invalid or unidentifiable values. For more information on configuration options, refer to the installation and operation manual for your operating environment.

1009 THE TRANSACTION FILENAME OPTION IS INVALID

The filename specified for the Transaction Filename configuration option is not valid. Check to make sure that the transaction filename is correct.

1011 THE COMPRESSION BUFFER SIZE SPECIFIED IS OUT OF RANGE

The Compression Buffer Size configuration option must be between 1 and 64, inclusive.

1013 THE TASK TABLE IS FULL (WINDOWS ONLY)

The Btrieve DLL may return this status code if the task entry table is full. You can remedy this situation by increasing the number of available task entries; use the tasks initialization option (tasks=xxx) under the [BTRIEVE] or [BREQUESTDPMI] headings in NOVDB.INI. The minimum value for this option is 1; the maximum value is 255.

1014 THE APPLICATION ENCOUNTERED A STOP WARNING

WBTRVSTOP () returns this status code if the application still has open files or an active transaction. The application must close all files and end all transactions before calling WBTRVSTOP ().

1015 A POINTER PARAMETER IS INVALID

One of the pointer parameters passed into Btrieve is invalid.

1016 BTRIEVE IS ALREADY INITIALIZED

The Btrieve DLL may return this status code if an attempt is made to initialize Btrieve when it is already initialized. To reinitialize Btrieve, close all files, end/abort all transactions, and call WBTRVSTOP () before calling the initialization function.

1017 THE BTRIEVE REQUESTER FOR WINDOWS CANNOT FIND WBTRVRES.DLL

WBTRCALL.DLL returns this status code when it cannot find the resource file WBTRVRES.DLL. You can remedy this situation by placing a copy of the WBTRVRES.DLL file in the same directory as the WBTRCALL.DLL file.

Btrieve Requester Status Codes

This section lists the status codes that the Btrieve Requesters may generate.

2001 THE MEMORY ALLOCATION IS INSUFFICIENT

In an OS/2 environment, the Requester cannot allocate enough memory for the parameters specified with the BRQPARMS environment variable. In a DOS environment, reduce the value specified for the /D configuration option.

2002 THE OPTION IS INVALID OR OUT OF RANGE

In an OS/2 environment, either one of the options specified with the BRQPARMS environment variable is invalid (such as /P instead of /D) or the value specified for a parameter is out of range. Check the SET BRQPARMS statements to make sure it is correct.

2003 THE REQUESTER DOES NOT ALLOW LOCAL ACCESS TO THE SPECIFIED FILE

The application attempted to access a file stored on a local drive. The version of WBTRCALL.DLL installed at the workstation does not allow access to local files.

2004 SPX IS NOT INSTALLED

Install the NetWare SPX v1.3 or later communications software for OS/2.

2005 AN INCORRECT VERSION OF SPX IS INSTALLED

Install the NetWare SPX v1.3 or later communications software for OS/2.

2006 THERE IS NO AVAILABLE SPX CONNECTION

SPX has already established the maximum number of sessions it can handle. To increase the maximum, edit the NET.CFG file. Refer to your NetWare documentation for more information on NET.CFG.

2007 A POINTER PARAMETER IS INVALID

One of the pointer parameters passed to Btrieve is invalid. Check the program to ensure that the pointer parameters are correct.

*Appendix E N*ms *Smart-Launch Support*

Appendix D provided Btrieve status codes. This appendix provides instructions for enabling SiteMeter smart-launch within NMS.

NOTE: In addition to detailed instructions, this appendix also has a quick start guide at the end for experienced users.

Enabling Smart-Launch within NMS

Many McAfee customers have expressed an interest in utilizing the McAfee network management applications as snap-in applications within the Novell NetWare Management System framework. In response to this request, McAfee has implemented support for NMS smart-launch with five of its currently shipping applications: BrightWorks, LAN Inventory, SiteMeter, NetShield and NetRemote.

After following the instructions below, the user will be able to point at an object on an NMS map, select a McAfee command from the NMS Tools menu, and launch the selected McAfee application in a context-sensitive fashion.

Activating the Smart-Launch Feature

Use the following procedure to activate the smart-launch feature.

1. Obtain the McAfee NMS Explorer disk.

    Contact your McAfee representative to obtain a copy of the "McAfee NMS Explorer" Disk. It is available free of charge.

2. Copy all files from the NMS Explorer disk.

    Two sets of files must be copied from this disk for later use, plus one other file must be created.

    a. Copy all of the program files (EXE, DLL) to a new directory (e.g., NMS\BDI2NMS) on your NMS console (not into the NMS directories!).

> **NOTE:** It is important to NOT copy these files into the NMS\BIN directory as some of the Novell DLLs that are shipped on this disk may not be the latest DLLs available from Novell for NMS.

    b. Copy the WLAI.OLF file from this disk into the NMS\OLF directory. The McAfee disk includes all .OLF files that are necessary for the smart-launch ready McAfee applications. The .OLF file prefixes match the McAfee product EXE names (e.g., for SiteMeter the relevant files are WLAI.EXE and, therefore, WLAI.OLF).

    c. Copy any icon in the NMS\ICONS directory to NULL.ICO. When the Novell OLF Introducer (see below) is run it will require a named icon (.ICO file) for each class introduction in case the icon were to show up on an NMS map. Since McAfee does not force one of its icons onto the map, no icons are shipped on this floppy. Any of the icons in that directory may be used as the source icon.

3. Introduce NMS to McAfee.

   Note that the Novell N-OLFI.EXE file must be in the NMS\BIN directory.

    a. Use Novell's OLF Introducer to add the McAfee classes to the NMS database. The Introducer takes .OLF files as input. As mentioned above, .OLF files for all smart-launch ready McAfee applications can be found on this disk. It is necessary only to introduce those applications that are installed to NMS. Choose the classes that you need for the McAfee applications that are desired.

    b. Run the OLF Introducer (N-OLFI.EXE). This latter program has no menu; by default it displays a standard Windows common dialog for opening a file. Browse to find the target McAfee .OLF file (e.g., BWORKS.OLF, WLAI.OLF, SITEMETR.OLF, WNR.OLF), as appropriate.

    c. Run the Introducer once for each .OLF file, specifically for WLAI.OLF.

> **NOTE:** By default the Introducer has no main window; therefore, any success/failure indications cannot be seen. Invoke N-OLFI.EXE with a -s switch (for "show") to see status messages regarding class introductions. The syntax is as follows:
>
> ```
> syntax: N-OLFI.EXE -s
> ```

4. Explore the NMS databases for nodes and servers.

   Run the McAfee BDI2NMS.EXE program included on this disk. This program requires no "setup," but it should be copied (as mentioned above) to its own directory. It requires several DLLs that are included on this diskette. These include the NWNETAPI.DLL and several of the N-*.DLLs from the NMS BIN directory.

When you run BDI2NMS.EXE, you may either run the "Enable All" command or select a specific McAfee product, such as SiteMeter. BDI2NMS.EXE uses the NMS database APIs to search the NMS data for workstations and servers. Smart-launch is enabled for each McAfee product in the following manner:

BrightWorks	smart-launch is enabled for servers only
SiteMeter and LAN Inventory	smart-launch is enabled for all workstations and servers
NetRemote	smart-launch is enabled for workstations only

NOTE: McAfee could have implemented BDI2NMS.EXE so that it would cross-check the existence of inventory data or an installed SiteMeter NLM set before enabling the smart-launch on an individual basis. However, doing so would have made the software slower and would have also required the user to perform the NMS database query far more often than is necessary for normal use.

To remove these settings within the NMS database, use the Disable All command to erase them.

This software has been tested against NMS 1.15 and 2.0. If the NMS database is large, the enabling exploration may take a while—this is due strictly to the speed of the NMS database callback API.

5. Smart-launch the desired module.

BrightWorks	Select the target PC or server where either EQUIP or an audit have been run, and then select the Fusion command in the NMS Tools menu. SiteMeter will skip a few steps and invoke the inventory details dialog box for the target node. The network number and NIC address are used as the synchronization key between SiteMeter and NMS.
SiteMeter	Select the server within an NMS map where SiteMeter is installed, and then select the SiteMeter command in the NMS Tools menu. The SiteMeter administration program is launched with an Application Usage Monitor showing information on application usage on that server.
LAN Inventory	Same as SiteMeter.
NetRemote	Select the target workstation, and then choose the NeRemote command in the NMS Tools menu. NetRemote will be invoked with the NetRemote

> options that are configured for the target PC. If the target PC is configured for remote control and has "listen" enabled, then NetRemote will automatically take control of the target PC.

Should you have any questions regarding any of these steps or regarding the smart-launch of McAfee applications within NMS, please do not hesitate to contact McAfee Technical Support.

Quick Start Guide

This section offers a brief outline of how to configure McAfee products (LAN Inventory, SiteMeter, and BrightWorks) with NMS. Use the following procedure:

1. NMS must be installed.

2. Install McAfee products into the NMS/BIN directory.

3. Copy all .OLFs from the NMS Explorer diskette to the NMS/OLF directory.

4. Go into Windows and select the Novell-NMS group icon (or wherever the NMS icons are located) and double click on the OLF icon.

   If there is no icon, select the Run command from the File menu in the Program Manager, browse the NMS/BIN directory for N-OLFI.EXE and choose the OK button.

5. From the NMS/OLF directory, select the .OLF corresponding to the McAfee product you are trying to smart-launch and choose the OK button.

6. Once the OLF is done, select the Run command from the File menu (in the Program Manager) and select BDI2NMS.EXE from drive a: (the NMS Explorer disk) and choose the OK button.

7. Once done, select DISCOVER from the Smart-Launch Menu and select either ALL or the individual McAfee product.

8. From the Novell-NMS group icon, select NMS. Then, from the Main Menu, select File\Open\InternetMap.

   This displays the map of the network.

9. From the Main Menu, select Tools.

    This should show the McAfee products that are smart-launchable.

NOTE: If you launch LAN Inventory, the Inventory window comes up. For NetRemote, it will control the PC selected. For SiteMeter, the usage screen will display.

Also note that this procedure works fine for NMS v1.0. For NMS v2.0, NMS looks for a NULL.ICO file during the .OLF step. If there is not NULL.ICO, copy any .ICO file as NULL.ICO.

Index