



LANClient Control Manager for
Windows NT Server

G06J-0520-0

Training and Procedures Guide



LANClient Control Manager for
Windows NT Server

G06J-0520-0

Training and Procedures Guide

Note

Before using this information and the product it supports, be sure to read the information in Appendix A, “Notices and Trademarks” on page 139.

Fifth Edition (September 1997)

The following paragraph does not apply to the United Kingdom or any country where such provisions are inconsistent with local law: INTERNATIONAL BUSINESS MACHINES CORPORATION PROVIDES THIS PUBLICATION “AS IS” WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some states do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

This publication could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. IBM may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time.

This publication was developed for products and services offered in the United States of America. IBM may not offer the products, services, or features discussed in this document in other countries, and the information is subject to change without notice. Consult your local IBM representative for information on the products, services, and features available in your area.

Requests for technical information about IBM products should be made to your IBM reseller or IBM marketing representative.

© Copyright International Business Machines Corporation 1997. All rights reserved.

Note to U.S. Government Users — Documentation related to restricted rights — Use, duplication or disclosure is subject to restrictions set forth in GSA ADP Schedule Contract with IBM Corp.

Contents

Chapter 1. Overview and Concepts of LANClient Control Manager	1
Overview	2
Concepts	7
Chapter 2. Installing and Running LANClient Control Manager	11
Installing LANClient Control Manager	12
Starting LANClient Control Manager	15
Running the Program from Another Workstation	16
Exiting from LANClient Control Manager	17
Uninstalling LANClient Control Manager	18
Chapter 3. Working with the Interface	19
Installation/Maintenance Window	20
Processing Changes Within LANClient Control Manager	22
Defaults Notebook	24
Individual Client Details Notebook	31
Software Profile Details Notebook	45
Additional Help	54
Chapter 4. Procedures	55
Adding Clients	56
Working with Images	61
Managing Software Profiles	72
Managing Clients	74
Managing Settings at the Client Workstation	81
Installing Network Adapter Device Drivers	84
Chapter 5. Hybrid RPL Training Exercises	89
Introduction	90
DOS/Windows Image	91
Windows 95 Image	96
Windows NT Workstation Image	103
Chapter 6. Example Files	125
Introduction	126
Backup Batch File - DOS/Windows Image	126
Backup Batch File - Windows 95 Image	127
Preload-Image Batch File	128
Final-Image Batch File - DOS/Windows Image	129
Final-Image Batch File - Windows 95 Image	130
Chapter 7. Utilities Provided by LANClient Control Manager	131
Utilities Used in Image Batch Files	132
Other Utilities	136
Appendix A. Notices and Trademarks	139
Notices	139
Trademarks	139
Index	141

About This User's Guide

This guide will help you become more familiar with IBM's LANClient Control Manager. Included in the guide are procedures and training exercises that help explain the product.

Although one of the features of LANClient Control Manager is to distribute software to client workstations on a LAN, the terms and conditions of the IBM International Program License Agreement for LANClient Control Manager do not grant any license to install, copy, or use any application software or operating system software not provided with LANClient Control Manager. This includes, but is not limited to, Microsoft Windows 3.1, Windows 95, Windows NT, and DOS. Always ensure that you have obtained the suitable licenses for any software you intend to use with LANClient Control Manager.

This guide is organized as follows:

- Chapter 1, "Overview and Concepts of LANClient Control Manager," contains an introductory overview of the purpose and features of LANClient Control Manager. Also, the different concepts relevant to LANClient Control Manager are discussed. It is important to understand the information discussed in this chapter to take full advantage of LANClient Control Manager.
- Chapter 2, "Installing and Running LANClient Control Manager," contains instructions on how to install, start, and exit from LANClient Control Manager. Also included are instructions on how to run LANClient Control Manager from another workstation and how to uninstall the program.
- Chapter 3, "Working with the Interface," provides a graphical view of each screen provided by LANClient Control Manager and a description of each field.
- Chapter 4, "Procedures," provides step-by-step procedures to accomplish the tasks associated with LANClient Control Manager.
- Chapter 5, "Hybrid RPL Training Exercises," contains detailed step-by-step exercises to create and distribute Hybrid RPL and Hybrid-NT RPL images.
- Chapter 6, "Example Files," contains examples of the files you need to create or modify. These files are used to distribute Hybrid RPL images.
- Chapter 7, "Utilities Provided by LANClient Control Manager," contains a description of the key utility programs provided with LANClient Control Manager and provides information about how to use them.

Also included is a "Notices and Trademarks" section and an index.

Who Should Read this Guide

This guide is intended to help network administrators understand the concepts and procedures of LANClient Control Manager. Training exercises are provided to help administrators use the product.

To effectively use this guide, you should have an extensive knowledge of your LAN and Windows NT Server.

How to Use this Guide

As a source of general information, you can use this guide to help you understand the features, capabilities, interface, and concepts of LANClient Control Manager before installing the program. You can also use this information to assess the technical skills required to implement, use, and maintain the program.

For training, this guide is most effective when used in the following order:

1. Review Chapter 1, “Overview and Concepts of LANClient Control Manager” to become familiar with the overall concepts and capabilities of LANClient Control Manager. This chapter will also help you become familiar with new terminology.
2. Download the LANClient Control Manager program from the World Wide Web.
3. Use Chapter 2, “Installing and Running LANClient Control Manager” to ensure your server software meets the minimum requirements, including having RPL support installed.

Note: Tips for installing RPL support are provided on the World Wide Web at <http://www.pc.ibm.com/us/desktop/lccm/index.html>.

Then, install the program and start it.

4. While the program is running, read through Chapter 3, “Working with the Interface” and use the program to open each notebook and select each page as you read about it in this guide. This will help you get a feel for using the interface.
5. Your next step depends on how you intend to use LANClient Control Manager:
 - If you will be using LANClient Control Manager to manage client workstations, but will not be developing Hybrid RPL or Hybrid-NT RPL images, you can start using LANClient Control Manager by using the information in Chapter 4, “Procedures.”
 - If you will be developing Hybrid RPL or Hybrid-NT RPL images, do the following:
 - a. Read Chapter 7, “Utilities Provided by LANClient Control Manager” to become familiar with the utilities you will use to develop Hybrid and Hybrid-NT images.
 - b. Go to Chapter 5, “Hybrid RPL Training Exercises” and select an exercise that most closely matches the type of Hybrid RPL image that you will be developing and distributing in your LAN environment.
 - c. Complete the exercise step-by-step in the order presented.
 - d. Upon successful completion of the exercise, you can either develop your own Hybrid RPL or Hybrid-NT RPL image, or use Chapter 4, “Procedures” to start using LANClient Control Manager for any of the other LAN-management tasks.

Chapter 1. Overview and Concepts of LANClient Control Manager

Overview	2
Specified Operating Environment	2
LANClient Control Manager Hardware Environment	3
Basic Operation	4
Advantages of Hybrid RPL	5
Use of Batch Files	5
Environment for Hybrid RPL	6
Interface Components	6
Concepts	7
Images	7
Standard RPL Images	7
Hybrid RPL Images	7
BIOS Update Images	7
CMOS Update Images	8
Batch Files	8
Types of Batch Files	8
A Word about Drive Mapping	9
Donor Workstations	9
Software Profiles	10

Overview

LANClient Control Manager provides you with tools to simplify adding client workstations to an existing local area network (LAN). Once a client workstation is added to the LANClient Control Manager database, you can remotely install, maintain, and update software on the client workstations. Key features include:

- Automated search for new clients on the LAN
- Operating system and application program installation through the LAN
- Controlled client workstation startup through standard remote program load (RPL) or LANClient Control Manager's enhanced *Hybrid RPL*
- Easy software maintenance through the LAN
- Ability to update the BIOS over the LAN

If you have NetFinity installed on your server, LANClient Control Manager can also:

- Remotely restart (reboot) a client workstation that is already turned on in order to process changes to client software
- Remotely turn off (power down) and turn on a client workstation in order to process changes to client software

The ability of NetFinity to turn off a client workstation is directly related to the version of NetFinity and the operating system installed on the client workstation. The power-down capability of NetFinity is currently limited to client workstations running Windows 95.

Note: LANClient Control Manager cannot be used to control clients across a router.

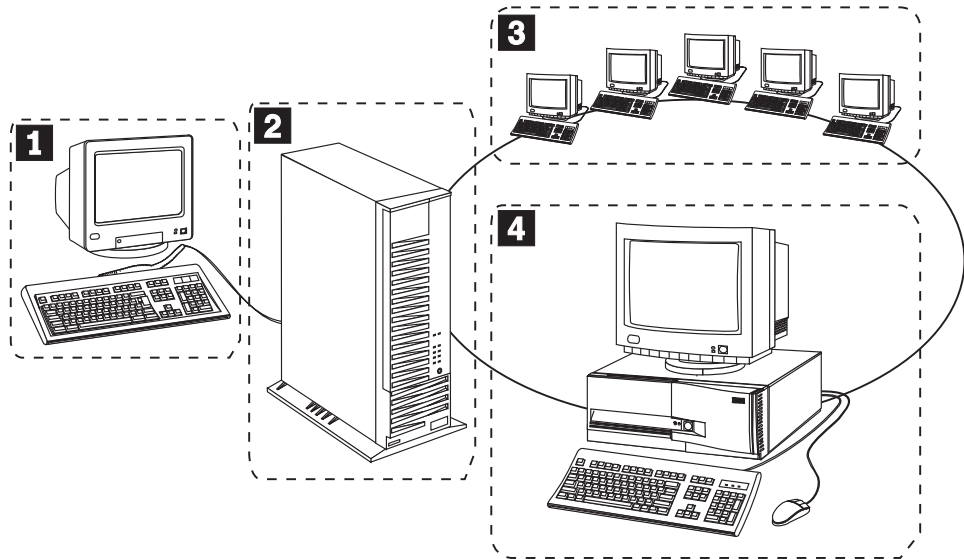
Specified Operating Environment

The specified operating environments for LANClient Control Manager are those supported by the compatibility test results for a variety of hardware and software combinations. The test reports are accessible from the World Wide Web at <http://www.pc.ibm.com/us/desktop/lccm/index.html>. This web location will be updated as additional test cases are completed.

Important: Before using LCCM, check the compatibility test results and browse the rest of the LCCM website for additional information and tips concerning the installation and use of LCCM.

LANClient Control Manager Hardware Environment

The following illustrations show the LANClient Control Manager environment.

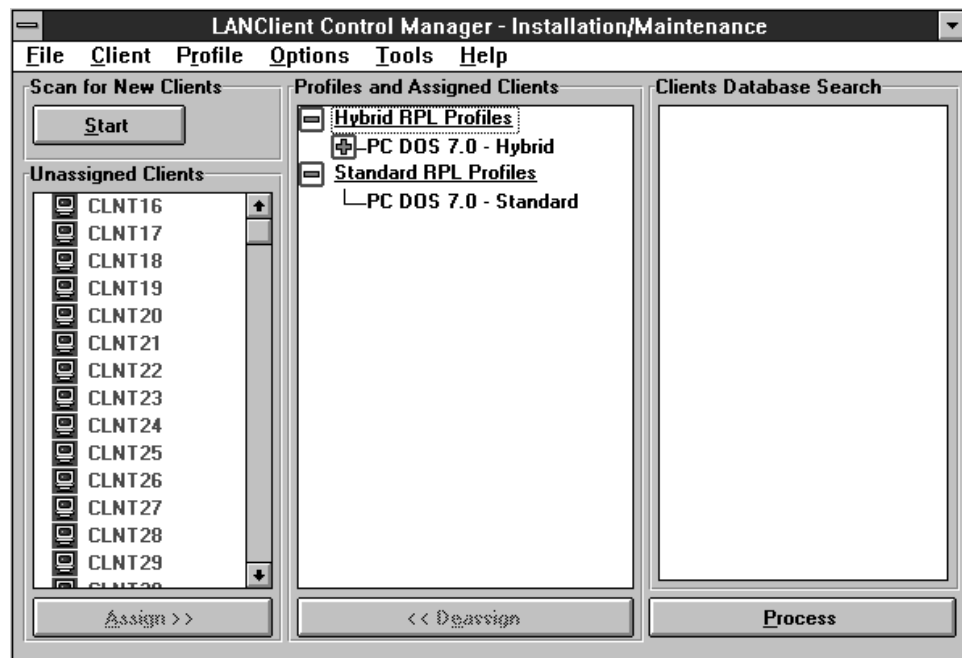


- 1** Server Console - A keyboard and monitor attached to the server (optional).
- 2** Server - The LANClient Control Manager program is typically installed here. LANClient Control Manager can optionally be installed on a client workstation (administrator console).
- 3** Client Workstations - These are workstations connected to the LAN. All client workstations to be managed by LANClient Control Manager must be enabled to support remote program load (RPL). For details, see "Installing New Client Workstations" on page 56.
- 4** Administrator Console - A workstation on the LAN through which or on which LANClient Control Manager is installed.

Basic Operation

LANClient Control Manager has a *scan* feature that automatically searches the LAN for new client workstations that are enabled for RPL. When it finds a new client workstation, LANClient Control Manager interrogates the client for information such as the serial number and network address. LANClient Control Manager assigns a name to the client and creates an Individual Client Details notebook for the new client. The Individual Client Details notebook contains the name of the client and the information that was detected during the scan. The name of the client appears in the *Unassigned Clients* list of the Installation/Maintenance window.

The following illustration shows the Installation/Maintenance window.



Once LANClient Control Manager has recognized a new client, you can assign the client to a software profile. Each profile has an associated *image* (set of software) on the server. When you assign a client to a profile and click on the *Process* button, the client performs one of the following actions the next time it starts.

- If a *standard RPL* profile is assigned, the server downloads a standard RPL image to the client's memory. The client starts, carries out the instructions contained within the image, and is ready to run the software made available to it through the LAN.
- If a *Hybrid RPL* profile is assigned, the server sets up a temporary operating system environment on the client, then downloads one or more batch files. The client first runs an optional preload-image batch file to prepare its hard disk to accept data, then runs a final-image batch file to copy an image (operating system and application programs) from the server to its hard disk. Optionally, the final-image batch file can contain instructions to personalize the installed image by adding system-unique information such as a unique network logon, TCP/IP address, and so on. On subsequent restarts, the client workstation downloads only a short bootstrap load instruction from the server, which instructs the client to start from its own hard disk.

You can create and store a variety of images and profiles on the server. The software within each image depends on the tasks to be accomplished by you or the end user.

Note: Profiles are unique to the LANClient Control Manager program. You create a profile to identify the associated image that resides on the server or the batch files used to copy an image from the server. Information about each profile is created and stored in the *Software Profile Details* notebook, which is discussed later in this book.

Advantages of Hybrid RPL

Hybrid RPL provides you with a very powerful technique for controlling your networked clients. There are several advantages of assigning clients to a Hybrid RPL image rather than a standard RPL image. These advantages include:

- The network load associated with downloading the complete image from the server to every client at startup is decreased.
- End users never need to load software onto their client workstations.
- You do not need to take diskettes to the client workstation to update or repair end-user software.
- End users are discouraged from keeping unauthorized or unlicensed software on their workstations, because the administrator can clean the hard disk drive and reinstall all software at any time.
- Clients can be disabled from functioning if they are disconnected from the network. This is done by altering the primary startup sequence of the client BIOS. Also, you can control the BIOS administrator password, which prohibits end users from altering the startup sequence.

Note: If an emergency occurs that prevents your clients from connecting to the network, they can optionally start up from their hard disk drives. For more information, see “Allowing Local Hard Disk Startup” on page 81.

While the Hybrid RPL process is unique to LANClient Control Manager, it does not need any proprietary hardware, and does not use any nonstandard transactions over your LAN, so it is very unlikely to have any adverse effect on any LAN applications you already use.

If you currently use a software-distribution application over the LAN, it can probably be used with Hybrid RPL to extend and improve your client control.

Use of Batch Files

You must create batch files to take full advantage of the capabilities of LANClient Control Manager. LANClient Control Manager uses batch files for the following tasks:

- Hard disk preparation (usually to invoke the FDISK operation)
- Software installation (usually using FORMAT, COPY, XCOPY, RESTORE, and PKUNZIP commands)
- Software personalization (to search for and replace character strings using variables)
- Software maintenance (to replace one or more files)

Examples of batch files for these and other tasks are provided in Chapter 6, “Example Files” on page 125. Also, the use of batch files is discussed in more detail later in this chapter.

Environment for Hybrid RPL

Before LANClient Control Manager can run the various batch files, it must set up a temporary operating system environment at the client. It is important that you understand this environment before you develop any batch files.

- IBM PC DOS 7 is loaded on the client (the DOS software is not copied to the hard disk of the client; it is resident only in memory).
- Drive C of the client is temporarily renamed drive D.
- *C:\LCCM_install_dir\CLNTFILE* directory is mapped to *C:\LCCM* on the client machine. When creating batch files, you must therefore use the path, *C:\LCCM*, to access the *\CLNTFILE* directory. This is the directory where all of the required utility programs are stored. For details on these utilities, see Chapter 7, “Utilities Provided by LANClient Control Manager” on page 131.

Interface Components

The interface of LANClient Control Manager consists of the following major components:

- Installation/Maintenance window

This is the main window of the program, where you can view the various clients and profiles, assign clients to profiles, start and stop the scan operation, and start processing changes.
- Progress and Errors window

This window displays the status of events as they are being processed.
- Defaults Notebook

You use this notebook to define global default parameters, such as how and when processing will take place, timeout durations, the administrator password to assign to each client workstation, and specific questions (prompts) to display at the client workstation during a scan process.
- Individual Client Details Notebook

The information in this notebook is created automatically by the scan process for each client workstation it detects. You can also create, copy, or modify the notebook manually. The notebook contains information about specific client workstations, such as the serial number, network address, key hardware installed, image assigned, and BIOS level. It also contains the personalization values unique to each client workstation that you use to personalize an image. You can also use this notebook to perform maintenance operations on client workstations, such as updating the BIOS code or updating the administrator password. A scheduler feature allows you to override the default scheduler and schedule a processing change at a specific date and time.
- Software Profile Details Notebook

The information in this notebook is created by you. The Software Profile Details notebook contains information about the image that is associated with a specific profile. It contains:

 - A description of the profile contents.
 - Information about the minimum hardware required by a client workstation to use the image.

- The name of the *preload-image* batch file used to prepare the local hard disk of the client, and the name of the *final-image* batch file used to install the software.
- A listing of personalization names and values.

The interface is described in greater detail in Chapter 3, “Working with the Interface” on page 19.

Concepts

The following conceptual information will help you understand the various elements used by LANClient Control Manager.

Images

An image is the software stored on a server that is downloaded to a client workstation during a remote program load. Images vary in size and in the type of software they provide to the client workstation. The purpose and content of each image depends on the task that needs to be accomplished, as well as the method (standard RPL or Hybrid RPL) used to download the image from the server to the workstation.

Standard RPL Images

In general, a standard RPL image provides only enough function to enable the client workstation to start up and gain access to the network. For more information, see “Creating a Standard RPL Image” on page 61.

Hybrid RPL Images

A Hybrid RPL image contains the software designed to meet the needs of a specific end user, department, or group of end users that perform similar tasks. It consists of a complete operating system and a set of application programs. Multiple images can reside on a server, and the same image can be downloaded to multiple clients. The size of the image is limited only by the hard disk capacity of the client workstation that will be using it.

Note: A Windows NT Workstation image distributed from your server is called a Hybrid-NT RPL image. This image is stored in a directory on your server referred to as the *Distribution Sharepoint*. The method of creating and distributing a Hybrid-NT RPL image is somewhat different from other Hybrid RPL images because of the unique relationship between Windows NT Workstation and Windows NT Server. For more information, see “Windows NT Workstation Image” on page 103.

BIOS Update Images

LANClient Control Manager can read the contents of a flash BIOS update diskette and store it as an image on the server. All flash BIOS images are kept in a sub-directory on the server. For more information, see “Creating a BIOS Update Image” on page 68. Once the flash BIOS update is stored as an image on the server, you can use the Maintenance page of the Individual Client Details notebook to remotely update a client workstation's BIOS level. For additional information about this procedure, see “Updating the BIOS Level” on page 78.

CMOS Update Images

The CMOS update image is a file that contains the BIOS settings that are set through the client workstation's Configuration/Setup utility program. You use a *donor workstation's* Configuration/Setup utility program to save the settings you want. Next, you copy the settings to a file and copy the file to the server's directory. For more information, see “Creating a CMOS Settings Image” on page 70. Once the file is on the server, you can use the Maintenance page of the Individual Client Details notebook to copy these settings to the client workstation's CMOS memory. All CMOS update files must be identified with a .CMS file extension. For more information about this procedure, see “Assigning Clients a CMOS Settings Image” on page 79.

Batch Files

The Hybrid RPL process downloads and runs batch files on client workstations. These batch files copy the files of the assigned image from the server to the client workstation or carry out other tasks, such as preparing a client workstation's hard disk to accept data or modifying an image after it has been installed.

You must create the batch files to meet your specific needs. The more proficient you are at writing batch files, the more powerful LANClient Control Manager becomes as a network-management tool.

When creating batch files, keep a few rules in mind:

- Keep batch files as simple as possible.
- Test batch files on a donor workstation before running them on an entire workgroup. This will help you find errors early in a controlled environment.
- Make sure that you understand drive mapping and that you develop your batch files from the client workstation's point of view.
- Ensure that you assign the appropriate file extensions for different types of batch files that you create.

Types of Batch Files

LANClient Control Manager's Hybrid RPL process uses batch files for various tasks. Each type of batch file has a unique file extension that is used to identify its purpose. The following are the types of batch files that can be used by the Hybrid RPL process:

- .LCP

This is the preload image batch file. This batch file is used to prepare a client workstation's hard disk before downloading the final image, usually by issuing a LCBTRDEL command to delete existing partitions and a FDISK command to re-partition the drive.

Because the DOS FDISK command does not allow the use of command-prompt parameters that enable unattended operation, any preload-image batch file using this command must be accompanied by *response files* to provide the appropriate keyboard responses.

- .LCI

This is the final-image batch file. This batch file is used to download the client workstation's final image from the server, usually by using the XCOPY or COPY commands. In some cases, the final image file also includes formatting commands, provides personalization attributes, and runs other programs provided by LANClient

Control Manager to handle long file names and temporarily change system and hidden-file attributes.

Also, this is the required file extension for the customization batch file used with a Hybrid RPL-NT (Windows NT Workstation) image. This batch file is used to personalize the Windows NT answer file. For additional information, see “Editing the Windows NT Workstation Answer File” on page 115.

- .MNS

This is the maintenance batch file. This batch file is similar in function to the final-image batch file, but is used specifically to copy additional or updated programs to an image already installed on a client workstation. If a particular end-user (for example, a department manager), requires more software than other end-users, you can install a common image, then use the maintenance batch file to add the additional software. Once the additional software and maintenance batch file are on the server, you can use the Maintenance page of the Individual Client Details notebook to install the additional software. This way, you will not have to recopy an entire image or develop a unique final-image batch file.

A Word about Drive Mapping

It is very important that you understand the concepts of drive mapping before you create your batch files. Because drive mapping assigns drive letters to directories and sub-directories of a server, you have to remember to write the batch files from the client workstation's point of view.

For example, assume you have created a Windows 95 image for Bob's marketing team and placed it under the server's `LCCM_install_dir\CLNTFILE\WIN95\` directory. By default, the `LCCM_install_dir\CLNTFILE` directory is mapped to `C:\LCCM` on the client while executing `.LCP`, `.LCI`, and `.MNS` batch files. During this period, the primary partition on the client hard disk is reassigned as drive D. When developing your final-image batch file, the statement needed to copy the image to drive C of the client workstation would be:

```
XCOPY C:\LCCM\WIN95\*.* D:\*.* /S
```

From the client workstation's perspective, the server's `LCCM_install_dir\CLNTFILE` directory is `C:\LCCM` during a hybrid RPL session.

Donor Workstations

The process of controlling workstations is much easier if you use a *donor* workstation to write and test your batch files before migrating the image to every client on the LAN. A donor workstation is a requirement for creating a CMOS image and developing a Hybrid RPL image.

The donor workstation must be compatible (feature-by-feature) with the client workstations you plan to use. In most cases, it is advisable that the donor workstation and target client workstations be identical models to ensure that the correct device drivers are present and configured correctly. Ensure that you have adequate access to a suitable client workstation to use as a donor for writing batch files and testing changes before you make these changes on the entire workgroup. You will find it much easier to find and fix problems on a single donor client before migrating new or changed batch files to every client on your LAN.

Software Profiles

In many organizations, there are people doing the same or similar job and using the same software to do it. From a support and maintenance point of view, it is very important that these client workstations use an identical set of software. This often is difficult to achieve, and once achieved, difficult to maintain. However, using software profiles in LANClient Control Manager helps solve this problem.

You use a software profile to define a set of software and distribute it as an image through the LAN to one or more client workstations, thereby creating identical operating environments. As clients are added, the same image can be distributed to them. If the image gets updated, all client workstations currently assigned to that software profile can automatically be updated with the revised image at the next remote program load. No user intervention is required at the client workstation for the initial software installation or for updates.

Typically, most organizations will have several software profiles, each for a different type of job. For example, in addition to the operating system:

- An administrative assistant profile might include a word processor and calendar application.
- A marketing profile might include a spreadsheet and business graphics application.

After developing separate images for these functions and putting them on the server, you must create a Software Profile Details notebook for each image and give each notebook a descriptive name. Using the examples in the preceding list, the names Administrators and Bob's Marketing Team might be appropriate. When these notebooks are saved, the names appear in the Installation/Maintenance window. Each software profile is listed under the profile type (standard RPL Profiles, Hybrid RPL Profiles, and so on). The administrator would then assign each marketing workstation to the profile named Bob's Marketing Team and each administrative assistant's workstation to the profile named Administrators. The next time these workstations are started, the appropriate images are downloaded and they are ready to use.

Chapter 2. Installing and Running LANClient Control Manager

Installing LANClient Control Manager	12
Starting LANClient Control Manager	15
Running the Program from Another Workstation	16
Exiting from LANClient Control Manager	17
Uninstalling LANClient Control Manager	18

Installing LANClient Control Manager

Important:

- When you are installing the LANClient Control Manager program on the server, you must always log on as a *network administrator or equivalent*.
- You can find the files for installing LANClient Control Manager at <http://www.pc.ibm.com/us/desktop/lccm/index.html> on the World Wide Web.
- If you are re-installing an updated version of LANClient Control Manager, you must first uninstall the older version. For more information, see “Uninstalling LANClient Control Manager” on page 18.

The minimum software required is Windows NT Server 4.0.

Prerequisites:

- Windows NT Server 4.0 must be installed as follows:
 - The server's computer name cannot contain embedded spaces.
 - The remoteboot files must be installed on a partition formatted with NTFS so permissions can be set.
 - Install the DLC, NetBEUI and TCP/IP protocols.
 - If you intend to use LANClient Control Manager to install Windows NT Workstation on your clients, you must have sufficient room to copy the Windows NT Workstation CD onto your server (approximately 80 MB). You also need sufficient room to store on this drive all other images you will be using. You will be able to calculate the total amount of space you will require by adding together the amount of space required by all the images you will be storing.
 - When processing or scanning, LANClient Control Manager requires two Windows NT licenses for each client workstation being processed concurrently. You will be asked to provide the number of licenses needed during the Windows NT Server installation.

Note: You can limit the number of clients that will be processed at any single time within the LANClient Control Manager program. For more information, see “Defaults Notebook - Processing Page” on page 26.

If you need to add additional licenses, use the Windows NT License Manager feature, which is accessible through the Administrator Tools (Common) program.

- The Remoteboot Service must be installed and functioning correctly. (The instructions for installing the Remoteboot Service are provided below.)
- Review the installation notes for changes or tips at <http://www.pc.ibm.com/us/desktop/lccm/index.html> on the World Wide Web.

To install the Remoteboot Service:

Note: You must be logged on as the administrator or use a user ID that is administrator-equivalent to perform many of the steps in the following procedure.

1. After you have installed Windows NT Server, use the following procedure to install and configure the Remoteboot Service.
 - a. From the Windows NT Control Panel, double-click on **Network**.

- b. Click on the Protocols tab and verify that the following protocols are installed:
 - DLC Protocol
 - NetBEUI Protocol
 - TCP/IP Protocol (required for Wake on LAN)

If any of these protocols are missing, add them.

- c. Click on the Services tab.
 - Add the NetBIOS interface (if it is not already there).
 - Add the Remoteboot Service.
- d. Click on the Adapters tab and verify that you have records for all adapters you will be using in your server.
- e. Click on **OK** to close the Network Window.

Note: If you receive a message to restart Windows NT, DO NOT RESTART it at this point.

- f. From the NT Control Panel, select **Services**.
- g. Highlight Remoteboot Service.
- h. Click on **Startup**.
- i. In the Startup box, select on the Automatic radio button.
- j. Click on **OK**.
- k. Click on **Start** to start the Remoteboot Service.
- l. Close the Services window.
- m. Shut down and restart Windows NT Server.

2. Use the following procedure to start Remoteboot Manager and verify that the Remoteboot Service has been installed and configured correctly.

Note: Remoteboot Manager is not normally used with LANClient Control Manager. This step is provided only to verify the correct operation of the Remoteboot Service.

- a. Connect one or more client workstations to the LAN and start them. These workstations must be configured for RPL.
- b. From the Windows NT desktop, click on **Start**.
- c. Select **Programs**.
- d. Select **Administrative Tools (Common)**.
- e. Click on **Remoteboot Manager**. The Remoteboot Manager starts. If you are instructed to create a profile, click on **OK** to continue.

For each client workstation attempting to RPL, you should see the MAC address displayed in the column labelled Workstation Name, there should be nothing in the In Profile column, and each MAC address should have some information in the Description column. If this is the case, the Remoteboot Service has been correctly installed.

- f. From the Remoteboot Manager task bar, select **Configure**, then click on **Fix Security**. Answer Yes to the resulting pop-up message.

- g. From the Remoteboot Manager task bar, select **Configure** again. then click on **Check Configurations**. Answer Yes to the resulting pop-up message.
- h. Close (not minimize) Remoteboot Manager. You are now ready to install the LANClient Control Manager program.

To install the LANClient Control Manager program:

1. Follow the instructions at <http://www.pc.ibm.com/us/desktop/lccm/index.html> on the World Wide Web to download and unpack LANClient Control Manager.
2. Install LANClient Control Manager by running the SETUP.EXE program. During the setup program, a series of prompts appear. At the Installation Type prompt, select one of the following:
 - If you are using the server's keyboard and monitor as the administrator console, select **Perform Server Installation**.
 - If you are using a client workstation as the administrator's console, select **Perform Server Installation**. This installs all required files on your RPL server. You must be logged on to the administrator console with administrator privileges.
 - If you want to run LANClient Control Manager from a client workstation, select **Perform Remote Workstation Installation only**. If you select this option, you must also install LANClient Control Manager on the server using the **Perform Server Installation** option. You must be logged on with administrator privileges.
3. At the Request Server Name prompt, ensure that the server name is correct.
4. At all other prompts, accept the default choices presented.

LANClient Control Manager is now installed. Once LANClient Control Manager is installed, a listing for LANClient Control Manager is added within the Taskbar of the operating system.

For every type of adapter you are using on your LAN, you must add an identifying line to the file *LCCM_install_dir\NETWORK.LST*. This file is used by LANClient Control Manager to store information about adapters on your LAN. For additional information, see "Installing Network Adapter Device Drivers" on page 84.

A list of supported adapters is provided at <http://www.pc.ibm.com/us/desktop/lccm/index.html> on the World Wide Web.

Starting LANClient Control Manager

The following procedure is for starting LANClient Control Manager from the workstation on which it was installed.

Before starting the program, make sure that you are logged on to the network at the administrator console as a system administrator or equivalent.

To start LANClient Control Manager:

1. Click on the **Start** button within the Windows interface.
2. Click on **Programs**.
3. Click on the listing for LANClient Control Manager.
4. Click on **LANClient Control Manager**.

The opening window appears. (If preferred, you can uncheck the box that allows this window to display each time LANClient Control Manager is started.) Click on **OK** to enter the program.

Note: You can also run LANClient Control Manager from another workstation. For more information, see “Running the Program from Another Workstation” on page 16.

Running the Program from Another Workstation

LANClient Control Manager initially runs only on the workstation through which you installed it. However, while working with the program, you might need to run LANClient Control Manager from another client workstation connected to the LAN.

To install and run LANClient Control Manager from a workstation other than the one from which you installed the program to the server:

1. Run the program SETUP.EXE.
2. At the installation prompt, select **Perform Remote Workstation installation only**.

Important: If you intend to run LANClient Control Manager from a remote workstation, you must use the full UNC path for all files and directories specified in the LANClient Control Manager notebooks and associated batch files. For example:

\\servername\sharename\directory\filename

The following share is automatically created by LANClient Control Manager:

\\servername\LANC\$\$

where LANC\$\$ will point toward:

\LCCM_install_dir\CLNTFILE

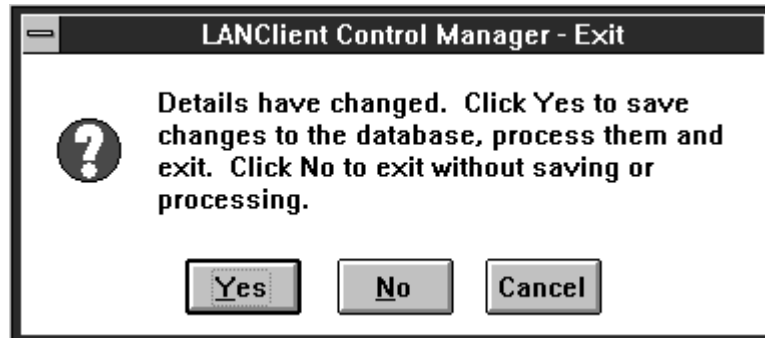
Exiting from LANClient Control Manager

To exit from the program:

1. Select **File** from the Installation/Maintenance window.
2. Select **Exit**.

If no details have changed, LANClient Control Manager automatically exits.

If details have changed but have not been processed, the following window displays.



- Select **Yes** to *save and begin processing* the changes. The Progress and Errors window displays. While this process is running, you can perform no other action within the program.
- Select **No** to *discard all changes* that have been made. You will have to enter these changes again after restarting the program.
- Select **Cancel** to *return* to the Installation/Maintenance window. No processing takes place.

Uninstalling LANClient Control Manager

At the administrator console, or at the workstation on which you installed LANClient Control Manager:

1. Locate the LANClient Control Manager installation directory on your server. If you want to save your client data, profile data, and network adapter list, copy or back up the files:
 - NETWORK.LST
 - LCCLIENT.DBS
 - LCPROF.DBS
 - LCCLIENT.INI

Delete these files if you do not want to save them.

2. Within the operating system interface, click on the **Start** button.
3. Select **Settings**.
4. Select **Control Panel**.
5. Select **Add/Remove Program Properties**.
6. Select **LANClient Control Manager**.
7. Click on the **Add/Remove** button to begin uninstalling LANClient Control Manager.

Chapter 3. Working with the Interface

Installation/Maintenance Window	20
Selecting Clients	21
Recognizing Clients within the Interface	21
Processing Changes Within LANClient Control Manager	22
Progress and Errors Window	23
Defaults Notebook	24
Defaults Notebook - General Page	25
Defaults Notebook - Processing Page	26
Defaults Notebook - Scan Page	28
Defaults Notebook - Scheduler Page	29
Individual Client Details Notebook	31
Individual Client Details - Details Page	32
Client Address	33
Individual Client Details - Hardware Page	35
Individual Client Details - RPL Details Page	36
Hybrid RPL or Hybrid-NT RPL Profile for Client	36
Standard RPL Profile for Client	36
Individual Client Details - Maintenance Page	38
Individual Client Details - Parameters Page	40
Individual Client Details - Scheduler Page	42
Software Profile Details Notebook	45
Software Profile Details - Details Page	46
Software Profile Details - Minimum Hardware Page	47
Software Profile Details - RPL Details Page	48
Hybrid RPL Details	48
Hybrid-NT RPL Details	49
Standard RPL Details	51
Software Profile Details - Parameters Page	52
Software Profile Details - Client Parameters Page	53
Additional Help	54

Installation/Maintenance Window

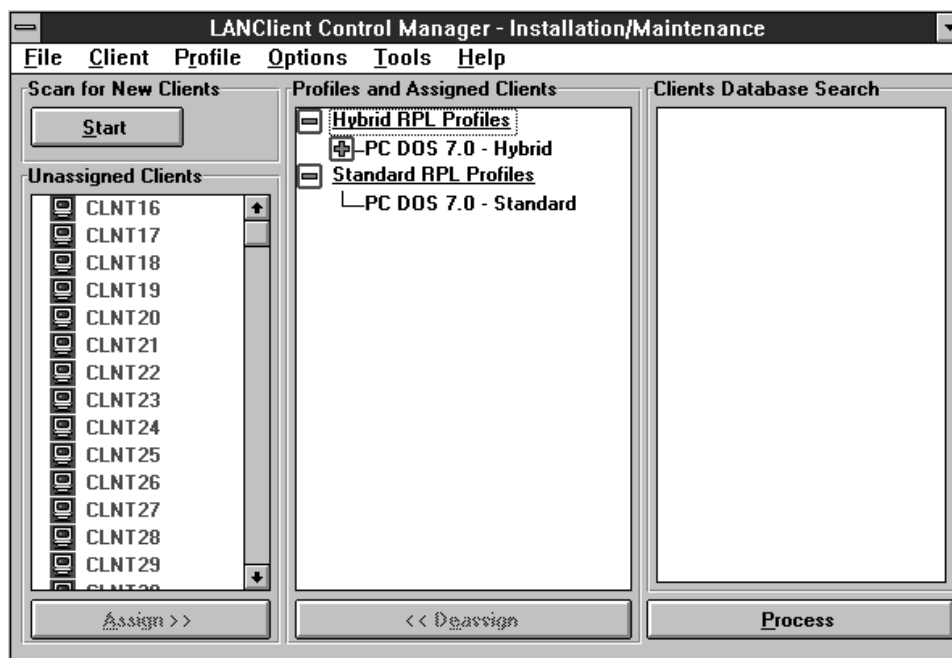
The main window within LANClient Control Manager is the Installation/Maintenance window. Each time the program is started, the Installation/Maintenance window is the first window to appear.

Using the available buttons in the Installation/Maintenance window, you can scan for new clients, assign and unassign clients to specific profiles, and process all changes. The additional menu bar at the top of the window provides access to all other functions within the program.

When moving within the Installation/Maintenance window and other windows of the program and when selecting items on the screen, you can use the mouse or keyboard (ALT key, ARROW keys, TAB key, ENTER key, and so on).

All actions you take within the program must end with the **Process** button. By clicking on the Process button, you save new information and either immediately change the permanent databases or initiate the Scheduler, which processes changes at a scheduled day and time. For more information on the Scheduler of the Defaults page, see “Defaults Notebook - Scheduler Page” on page 29. For more information on the Scheduler of the Individual Client Details notebook, see “Individual Client Details - Scheduler Page” on page 42.

The following illustration shows the Installation/Maintenance window. When you first start LANClient Control Manager, you will not see new clients until you add them to the database. For more information, see “Adding Client Workstations to the Database” on page 58. Also, you must create software profiles before you can assign clients. For more information, see “Creating a Software Profile” on page 72.



See “Managing Clients” on page 74 and “Managing Software Profiles” on page 72 for tasks associated with the program interface.

Selecting Clients

You can select one client or multiple clients before performing a procedure in the Installation/Maintenance window. Clients can be selected in one of three ways:

- To select *one* client, click on the client using the primary mouse button.
- To select *multiple* clients, press and hold the Ctrl key, click on the individual clients using the primary mouse button, and release the Ctrl key.
- To select a *contiguous group* of clients, click on the first client in the group, hold the shift key, and then click on the last client in the group. All clients between the two that you click on are selected.

Recognizing Clients within the Interface

If you are using a color monitor, you might notice that clients are displayed with different colors. The color of a client indicates specific qualities about the client.

- *Green* indicates that the client matches the hardware requirements for the selected profile.
- *Red* indicates that the client workstation does not match the hardware requirements of the selected profile, or no profile is selected.
- *Gray* indicates that the client currently has RPL disabled.
- *Blue* text indicates that the client is selected.

Processing Changes Within LANClient Control Manager

Changes made within LANClient Control Manager are saved in a temporary database until you click on the Process button. This enables you to make multiple changes before starting to process them. This is done because processing might take some time if it involves assigning clients to Hybrid RPL profiles that require large downloads.

- For immediate changes:

Click on the **Process** button to begin processing the changes. Once you select the Process button, the changes are saved to the LANClient Control Manager database and the processing begins. You can perform no other actions while the changes are being processed. The Progress and Errors window opens and displays all jobs currently in the queue and their associated status.

- For scheduled changes:

Once you click on the Process button, the changes are executed when the scheduled time arrives. The Progress and Errors window opens and displays all scheduled jobs currently in the queue, along with the day and time that the scheduled event will occur. You can perform no other actions while the changes are being processed.

Note: After setting a scheduled change and clicking on the **Process** button, you must leave your administrator's console switched on in order for the scheduled event to take place.

- On exiting LANClient Control Manager:

If there are any processing changes outstanding when you exit LANClient Control Manager, the exit information box displays. See "Exiting from LANClient Control Manager" on page 17 for more information.

Any errors in processing are displayed on screen. You will find these error messages in the Status column within the Progress and Errors window.

The error codes can be returned by any process within the batch file being executed, or by any CMOS or BIOS process being run. LANClient Control Manager cannot keep a list of meanings and actions for any external program error messages, because they are dependent on the program that has returned them. If an error message has been returned:

- By an image batch file

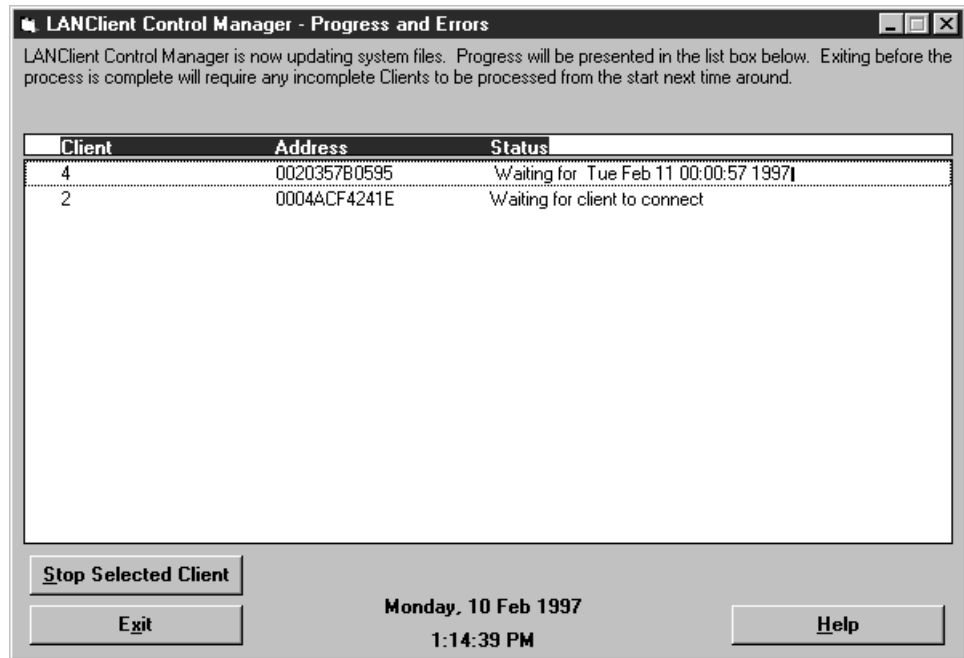
Run the image batch file on a donor workstation until you find the error. Check the error code against the appropriate help file for the program in the image batch file that is not working. Correct the error and click on the Process button again.

- By a BIOS upgrade procedure or CMOS upgrade procedure

On the original BIOS flash diskette, or in the directory containing the BIOS image, you will find a help file containing the error codes and a description of each error. Or, after setting the diskette or BIOS-image directory as your default, you can type **CMOSUTIL /?** and press **Enter**. The directory containing the BIOS image is *LCCM_install_dir\CLNTFILE\BIOS\BIOS_Flash_Name*.

Progress and Errors Window

The Progress and Errors window displays each time a processing change takes place. Processing changes can occur immediately after you click on the Process button or can be on a delayed schedule. For more information on scheduled changes, see “Defaults Notebook - Scheduler Page” on page 29 for information on the scheduler of the Defaults notebook or “Individual Client Details - Scheduler Page” on page 42 for information on the scheduler of the Individual Client Details notebook. The following is an example of the Progress and Errors window.



While the changes are processing, you can select specific clients in the list, and then click on the **Stop Selected Client** button to stop processing.

There are three columns of information within the Progress and Errors window.

- Client

This lists the name that is assigned to each client.

- Address

This lists the network address of the client.

- Status

The Status column indicates whether the client is waiting, scheduled, processing, or completed.

Error codes are also returned to the Status column, if there has been a failure.

Defaults Notebook

Whenever you need to change the default settings of the program, you must access the Defaults notebook.

To access the Defaults notebook:

1. Select **Options** from the menu bar of the Installation/Maintenance window.
2. Select **LANclient Control Manager Defaults**. The Defaults notebook displays.

Note: Some settings within the Defaults notebook are over-ridden by settings in the Individual Client Details notebook. For more information, see “Individual Client Details Notebook” on page 31.

The Defaults notebook contains four pages of information:

- General

This page contains information about the BIOS administrator password, the client name, and the RPL server name.

- Processing

This page contains information about the Hybrid RPL process, the text editor, and the client restart function.

- Scan

This page contains information about the optional user prompts that appear each time a client workstation is discovered by the scan process.

- Scheduler

This page contains information about how and when changes are processed.

To change to another page, click on the tab with the name of the information you want to view or change. All four categories, and the options within each one, are explained in this section.

Defaults Notebook - General Page

The screenshot shows a dialog box titled "LANClient Control Manager - Defaults" with four tabs: "General", "Processing", "Scan", and "Scheduler". The "General" tab is selected. Under the heading "General defaults", there are three sections:

- BIOS Admin password**: A text field containing "SECRET".
- Default Client name**: A text field containing "CLNT".
- Default Server name**: A text field containing "mondev02".

At the bottom of the dialog box are three buttons: "OK", "Cancel", and "Help".

- BIOS Administrator Password

The default value, if specified, is applied to all new clients during the scan process. If the field is left blank, no password will be set. If a default password is set, it is assigned to new clients when you scan them in. The default password is then applied to all new clients when the Process button is pressed to process immediate changes and when scheduled jobs reach their set time on the processing queue.

Notes:

- The default BIOS administrator password is set only during the scan process. If the default BIOS administrator password is set after the client has been scanned, the password will not be applied to that client.
- Changing the default password does not affect the passwords of clients that have already been scanned. If you need to change the BIOS administrator password for clients that have already been created, you can do so by using the Maintenance page of the Individual Client Details notebook. For more information, see “Individual Client Details - Maintenance Page” on page 38.
- The BIOS administrator password *code* is based on the positions of the keys, not the characters typed in. If any of your clients use a keyboard layout that is different from the keyboard layout you use to operate LANClient Control Manager (for example, a keyboard for another language), the BIOS password set through LANClient Control Manager might not be recognized when typed on the client keyboard. Be sure to use only characters that occur in the same position on all keyboards used. If the field is left blank, the password is disabled.

- Default Client Name

Every client managed by LANClient Control Manager must be allocated a name that is unique to that client on the network. When clients are generated by the scan process, a name is automatically allocated. This name is made up from the default client name base followed by an automatically generated number.

The default client name base is an alphanumeric string with a maximum of eight characters. The string must start with an alpha character. The actual client name generated is the name base followed by a decimal number from 001 to 999. You can change the client name base if the default is not suitable.

- Default Server Name

This is the name of the server that controls the remote program load (RPL) process for your clients. Anyone using LANClient Control Manager must have administrator access privileges to this server. The default value is set during the installation of LANClient Control Manager. The server name might be preceded by a single backslash, double backslash, or no backslash. Changing the server name has no effect until you stop and restart LANClient Control Manager.

Defaults Notebook - Processing Page



- Default Text Editor

You can specify the editor you want to use when editing files within LANClient Control Manager. Use the Browse button to locate the editor of your choice, or type the name (path and file name) directly into the space provided.

- Hybrid RPL Process

Use the following fields to set limits for the Hybrid RPL process.

- Maximum Clients to Download Concurrently

This setting limits the number of clients that can download Hybrid RPL images at the same time. For example, if you specify 10 for this limit, and if more than 10 clients try to perform Hybrid RPL download at the same time, all the downloads will still work, but only 10 will actively transfer images over the network at the same time. When the first one completes, the eleventh will start, and so on until they have all been loaded. The purpose is to prevent excessive load on the network and the server; the optimum setting depends on many aspects of network setup, tuning, and loading.

This setting affects only the initial image download and not the number of clients that can operate in Hybrid RPL mode once download is complete.

- Hybrid RPL Timeout (Minutes)

This setting specifies the time limit to wait for processing to complete for each client. If the Hybrid RPL download is not completed in the specified time, an error code is returned and processing stops.

- Default Client Restart

Use the following fields to record restart options.

- Wake on LAN Enabled

Client workstations that are physically powered off can be powered back on by LANClient Control Manager. To power on client workstations, LANClient Control Manager sends a packet containing the media access control (MAC) address of the workstation in five second intervals across the network. When the network adapter of the client detects this address, it powers up the workstation. When LANClient Control Manager has detected that the client is awake and running, it stops sending the packet.

Note: Some network-adapter and computer manufacturers might also refer to the MAC address as the universally administered address (UAA) or the network interface card (NIC) address.

Client workstation requirements for Wake on LAN:

- The workstation must be plugged into a live electrical socket.
- The network adapter must be enabled to support Wake on LAN.
- The workstation must have the BIOS Wake on LAN feature available and enabled.
- The workstation must be properly connected to the network.

- NetFinity Enabled

LANClient Control Manager uses NetFinity functions to remotely shut down and restart workstations before processing changes. If you have NetFinity Manager installed on your server, check this box to enable its functions.

Note: The power-down capability of NetFinity is currently limited to client workstations running Windows 95.

Neither NetFinity Manager nor NetFinity Services is shipped with LANClient Control Manager. For NetFinity to function correctly with LANClient Control Manager, you must have the following:

- NetFinity Manager, version 5.0 or greater, installed on the workstation or server on which you have installed LANClient Control Manager.
- NetFinity Services version 4.00.2 or greater (or NetFinity Manager version 5.0) installed on each client you want to remotely shut down or reboot through LANClient Control Manager.

Refer to the NetFinity documentation for details on using these products.

- NetFinity User ID

If you are using NetFinity, enter the NetFinity Manager user ID here to enable LANClient Control Manager to issue NetFinity commands, without being prompted for a logon.

- NetFinity Password

Enter your password for NetFinity here.

Defaults Notebook - Scan Page

You can set LANClient Control Manager to ask specific questions of the end user or installer at each client workstation. These questions are asked onscreen at every new client workstation detected by the scan process. Displaying questions during the scan operation is optional. The Scan page of the Defaults notebook is shown below.

The screenshot shows a dialog box titled "LANClient Control Manager - Defaults" with four tabs: "General", "Processing", "Scan", and "Scheduler". The "Scan" tab is selected. The dialog contains the following sections:

- User Prompt Screen at Client**
 - Contact**: A text box with the prompt "What is the full name of the person using this workstation ?".
 - Location**: A text box with the prompt "Please enter the user's department location."
 - Comments**: A text box with the prompt "Please enter the user's telephone number."
- User Prompt Timeout (Minutes)**: A spin box containing the value "5".

At the bottom of the dialog are three buttons: "OK", "Cancel", and "Help".

You can specify the questions that you want to ask concerning the following information:

- Contact
- Location
- Comments

You can ask any questions you like, and the answers are saved on the Details page of the Individual Client Details notebook. For more information, see "Individual Client Details Notebook" on page 31. The answers can be viewed or modified and optionally used as the value to display in lists of clients. If you do not specify any user prompts, the scan process completes without end-user input, and the values in the Individual Client Details notebook are left blank. You can manually enter the information into the Individual Client Details notebook later, if needed.

You can also specify the timeout period for the end-user response. This is the number of minutes that the scan process will wait for each prompt to be answered. If no input is entered, the scan process completes, leaving the information blank. If no timeout is specified, the scan process waits indefinitely for input.

Defaults Notebook - Scheduler Page

In the Defaults notebook, the Scheduler allows you to specify the date and time that LANClient Control Manager begins processing the changes that have been made.

Important:

- The Scheduler of the Defaults notebook is overridden by the Scheduler of the Individual Client Details notebook. For more information, see “Individual Client Details - Scheduler Page” on page 42.
- Use the Scheduler for the Defaults notebook and the Individual Client Details notebook with care. For example, if you incorrectly set the Scheduler for 3 *p.m.* instead of 3 *a.m.*, and specify the forced shutdown or restart operating system options, the client workstations are immediately restarted in the middle of the working day. Also, if you set the Scheduler to update client workstations during an overnight process, be sure to warn end users who might be running overnight processing that their workstations will be shut down at the specified time and that any end-user processing jobs in progress at that time will be terminated.



- Default Schedule

- As soon as possible

If you select this button, the changes begin processing as soon as you click on the Process button in the Installation/Maintenance window.

- Set day and time

Setting a date and time enables LANClient Control Manager to process the changes unattended, during the day and time of your choice.

Note: If you use the Scheduler to set a specific date and time, you must still click on the Process button and leave the program running for the scheduled changes to take place. Clicking on the Process button places the scheduled changes in the processing queue of the Progress and Errors

window; when the specific day and time arrives, the scheduled changes are processed.

- Default day and time

The day and time fields are available only if you have checked the Set day and time button. Select these fields using the following values:

- Day

- Next 24 hours

Processing takes place as soon as the specified time is reached (after the scheduled job is placed in the processing queue by clicking on the Process button).

- Select day

Selects the desired day to process the changes. Processing takes place as soon as the specified day and time is reached after the scheduled job is placed in the processing queue by clicking on the Process button.

- Time

- 12 hour clock displays a clock using the 12-hour format (a.m. and p.m.).

- 24 hour clock displays a clock using the 24-hour format.

- Hour selects the hour using the up and down arrows.

- Minute selects the minute using the up and down arrows.

- Clock face

The clock face allows you to set the time manually.

- The primary mouse button sets the minute.

- The secondary mouse button sets the hour.

Individual Client Details Notebook

Information about each client is managed from the Individual Client Details notebook. This notebook displays when you edit configuration details of existing clients or create new clients without using the scan option.

To access the notebook for an existing client:

1. Select a client (or multiple clients) in one of the listings of the Installation/Maintenance window.
2. Select **Client** from the menu bar.
3. Select **Configure** from the list.

Note: By selecting a single client, you can make changes for that client only. By selecting multiple clients, you make changes for all clients selected. When making changes for multiple clients, only some fields are available for editing. Fields not available for editing are grayed out.

To create a new Individual Client Details notebook:

1. Select **Client** from the menu bar.
2. Select **Create new** from the list.

The Individual Client Details notebook contains the following pages:

- **Details**
This page contains important details about the client, such as name, address, and serial number.
- **Hardware**
This page contains information about the hardware of the client.
- **RPL Details**
This page contains details of the client's assignment to a software profile.
- **Maintenance**
This page allows you to enter information about various maintenance procedures for the client, such as BIOS, CMOS, and administrator password updates.
- **Parameters**
This page is used to personalize information within a Hybrid RPL image for the client.
- **Scheduler**
This page allows you to control when scheduled changes will take place for the client.

Individual Client Details - Details Page

The Details page of the Individual Client Details notebook contains information that identifies the client.

The screenshot shows a window titled "LANClient Control Manager - Individual Client Details". It has several tabs: "Details", "Hardware", "RPL Details", "Maintenance", "Parameters", and "Scheduler". The "Details" tab is selected. The form contains the following fields:

- Client details:**
 - Name:** CLNT3
 - Address:** B004AC82C70B
 - Serial Number:** 55FT180
 - Client Status:** Client Disabled
 - Model type:** 657759T
- Location:** 3rd Floor, room29
- Contact:** John Smith
- Comment:** Accounts Dept. - extn 2344

At the bottom of the window are three buttons: "OK", "Cancel", and "Help".

- Name

If the client is created automatically by the scan process, the name is generated by LANClient Control Manager. If you manually create a client, you must type the name here. The name must be unique and cannot be modified for multiple clients.

- Address

This is the 12-digit, hexadecimal, universally administered address (UAA) of the network adapter installed in the client workstation. This address is set by the manufacturer of the network adapter. This address is also referred to as the media access control (MAC) address or network interface card (NIC) by some manufacturers.

For more information, see "Client Address" on page 33.

- Serial Number

This is the client serial number that is collected during the scan process or manually entered when a client is created by you.

- Client Status

This field indicates whether or not RPL is enabled for the client. If the Client Disabled box is checked, the client cannot start by means of a RPL.

- Model Type

This field shows the type and model number of the client workstation. This information is collected during the scan process.

- Location, Contact, and Comment

This information is typically entered by the end user or installer during the scan process if questions were specified on the Scan page of the Defaults notebook. For more information, see “Defaults Notebook - Scan Page” on page 28. You can change or update these fields as needed.

Client Address

The client address is normally collected during the scan process. If you create a client without using the scan process, you must get the network address from the client and type it in this field.

The client address *must* match the address (MAC address, UAA, or NIC address) that is permanently assigned to the client's network adapter. You can change this field, but do so only under the following conditions:

- You are creating a new client without using the scan process
- The network adapter for an existing client has been changed for any reason (for example, if it develops a fault).

To find the address for a client, turn on the client and let it attempt to start up from the network. The address is displayed on the screen along with other information. The format varies depending on the type of network adapter. For examples, see:

- “Network Address for IBM Token Ring Adapter”
- “Network Address for IBM Ethernet Adapter”

Alternatively, some network adapters have their addresses printed on labels attached to the adapters. Also, if the network subsystem is integrated with the system board of the workstation, the network address might be accessible through the Configuration/Setup Utility program.

Network Address for IBM Token Ring Adapter: When the client attempts to start up from the network, the client screen displays information about the RPL process. The following example is a typical RPL display for an IBM token-ring adapter. The network adapter address follows the prefix AA. In this example, the adapter address is 0004AC8140D7.

```
ET-00:00:22
ID-166
BU-0000
AA-0004AC8140D7
AL-00 0B00 P322AB
BL-C41876M
MM-DA00 11
SR-DC00 16
OP-0000 04 S
RQ-0008
```

Network Address for IBM Ethernet Adapter: When the client attempts to start up from the network, the client screen displays information about the RPL process. The following example is a typical RPL display for an IBM Ethernet adapter. The network adapter address follows the prefix *RPL-ROM-ADR*:. In this example, the network adapter address is 1000 5ABA AE2D.

RPL Protocol ROM v1.03 (930311)
IBM LAN Adapter for Ethernet MLID v1.20 (930311)
(C) IBM, NSC, 1993. All Rights Reserved.
RPL-ROM-ADR: 1000 5ABA AE2D
RPL-ROM-IRQ: 5
RPL-ROM-PIO: 0280
RPL-ROM-FFC: 10

Individual Client Details - Hardware Page

The Hardware page of the Individual Client Details notebook contains details about the installed hardware of each client. LANClient Control Manager uses this information to ensure that a new client meets the hardware requirements for a specific software profile. The client hardware details are normally collected by the scan process, but can be entered or modified using this page.

The screenshot shows a window titled "LANClient Control Manager - Individual Client Details". It has six tabs: "Details", "Hardware", "RPL Details", "Maintenance", "Parameters", and "Scheduler". The "Hardware" tab is selected. Below the tabs, there is a section titled "Client Hardware" containing four rows of configuration fields:

- Network Adapter:** A drop-down menu showing "Crystal Semiconductor IBM Etherjet on System Board".
- Video Chipset:** A drop-down menu showing "Cirrus Logic GD-5436/46 VGA".
- RAM fitted (Mega bytes):** A text input field containing the value "16".
- Hard Disk (Million bytes):** A text input field containing the value "1220".

At the bottom of the window, there are three buttons: "OK", "Cancel", and "Help".

- Network Adapter

The adapter type is selected from a drop-down list. If the adapter your client is using is not shown on the list, select **Unknown**.

- Video Chipset

The video chipset installed in the client is selected from a drop-down list. If the video subsystem your client is using is not shown in the list, select **Unknown**.

- RAM

This field displays the amount of installed random-access memory (RAM). The amount specified is in units of 1 048 576 bytes.

- Hard Disk

This field displays the capacity of the hard disk drive. The amount specified is in units of 1 000 000 bytes.

Individual Client Details - RPL Details Page

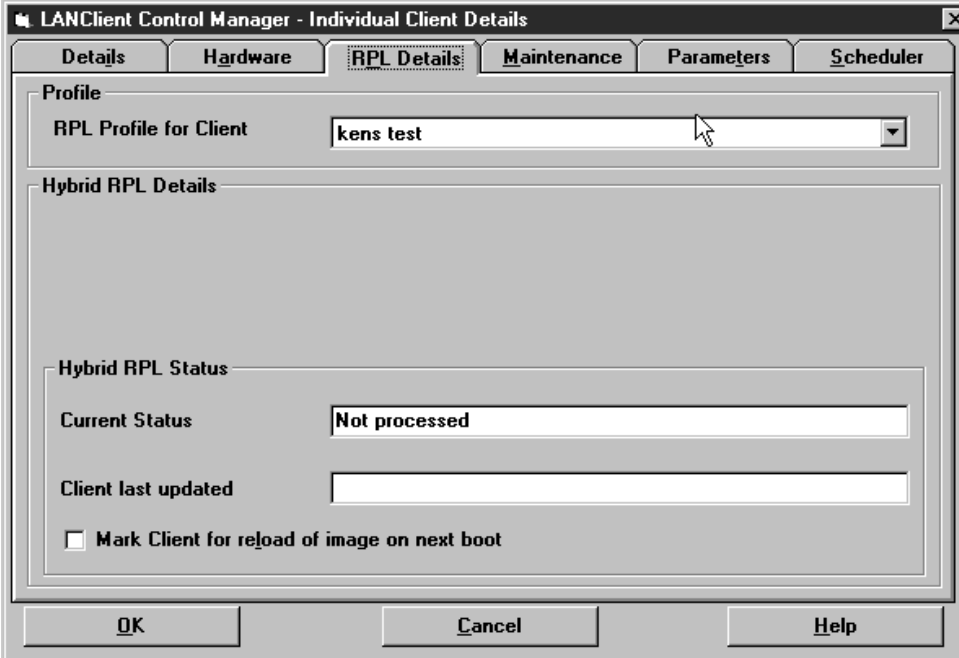
The RPL Details page of the Individual Client Details notebook is used to set up the details of a client's assignment to a software profile. The contents of this page vary depending on the RPL profile type that is selected in the first field.

Hybrid RPL or Hybrid-NT RPL Profile for Client

If you select a Hybrid RPL profile or a Hybrid-NT profile from the drop-down list in the RPL Profile for Client field, the following fields are available:

- Hybrid RPL Status

The Current Status and Client last updated fields are for informational purposes only. You cannot enter data into these fields.



The screenshot shows a dialog box titled "LANClient Control Manager - Individual Client Details" with a close button (X) in the top right corner. The dialog has several tabs: "Details", "Hardware", "RPL Details" (which is selected and highlighted), "Maintenance", "Parameters", and "Scheduler".

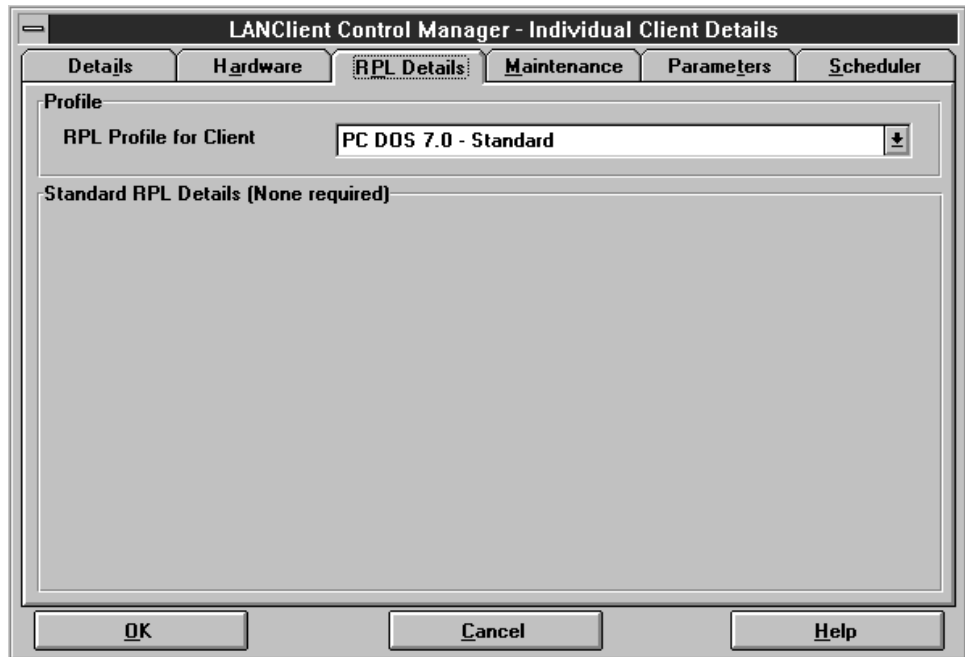
Under the "RPL Details" tab, there is a "Profile" section with a dropdown menu labeled "RPL Profile for Client" containing the text "kens test". Below this is a "Hybrid RPL Details" section, which is currently empty. Underneath that is a "Hybrid RPL Status" section containing two text boxes: "Current Status" with the text "Not processed" and "Client last updated" which is empty. At the bottom of this section is a checkbox labeled "Mark Client for reload of image on next boot" which is currently unchecked. At the very bottom of the dialog are three buttons: "OK", "Cancel", and "Help".

- Mark Client for reload of image on next boot

You can force a reload of software to a Hybrid RPL client at its next startup by clicking on the reload check box. This is useful if the software on the client has been damaged. Rather than try to diagnose the problem and replace the individual damaged files, you can reload the whole image by selecting the *reload* box and asking the user to restart the workstation.

Standard RPL Profile for Client

If you select Standard RPL from the drop-down list in the RPL Profile for Client field, no additional fields are available.



See “Creating a Software Profile” on page 72 for information on how software profiles are created.

Individual Client Details - Maintenance Page

The Maintenance page of the Individual Client Details notebook allows you to specify various actions to maintain and update the client.

The screenshot shows a window titled "LANClient Control Manager - Individual Client Details" with a tabbed interface. The "Maintenance" tab is selected. The window is divided into two main sections: "BIOS & CMOS Setup" and "Maintenance".

BIOS & CMOS Setup

- Current BIOS Level:** A text input field.
- Update BIOS:** A checkbox. To its right are two dropdown menus: "Level" and "Language" (currently set to "BE").
- Update CMOS with file:** A checkbox. To its right is a text input field and a "Browse..." button.
- Update BIOS Admin Password:** A checkbox. To its right is a text input field.

Maintenance

- Run Maintenance file:** A checkbox. To its right is a text input field and a "Browse..." button.

At the bottom of the window are three buttons: "OK", "Cancel", and "Help".

If you select any of the *Update* or *Run* boxes, the next time the client starts, instead of the Hybrid RPL bootstrap or standard RPL image being downloaded, the selected procedure runs. The following fields are available on the Maintenance page:

- Current BIOS Level

The current BIOS level is determined by the scan process. If the BIOS has been updated, this field contains the name of the BIOS level currently installed in the client. This information will not match the level as reported by the BIOS setup screens of the client, if you have changed the default level name detected during the Read BIOS Flash Diskette process. For more information, see "Updating the BIOS Level" on page 78.

- Update BIOS

Select this box to update the client BIOS level at the next startup. Use the following fields to specialize this selection:

- Level

Select the BIOS level from the drop-down list.

- Language

Select the BIOS language from the drop-down list.

- Update CMOS with file

Select this box to update the client CMOS settings. Type in the name of the file, or search for a file by selecting the **Browse** button. The file extension for these files is .CMS. The CMOS settings will be updated the next time this client is processed. Refer to "Assigning Clients a CMOS Settings Image" on page 79 for more information.

- Update BIOS Admin Password

Select this box to set or change the client BIOS administrator password. You can type in the new password or delete the current password. The password will be updated the next time this client is processed. Refer to “Changing the BIOS Administrator Password for Service” on page 82 for more information.

- Run Maintenance file

Select this box to run a maintenance batch file.

A maintenance batch file is a batch file used to perform a one-time action on a client the next time the client starts up. This maintenance file normally performs a partial image download or upgrade. For example, if your word processing package is upgraded, write a small maintenance file to copy only those new files that are required. This prevents running a full image download.

If you select a maintenance batch file to run and check the Run Maintenance file box, the next time the client starts, instead of the Hybrid RPL bootstrap or standard RPL image, a maintenance bootstrap is loaded onto the client and the specified batch file is run. When the batch file completes, the client restarts, and normal operation continues. You can use this process to update a single application on the client without reloading the whole image. You can type in the name of the maintenance batch file you want to use or you can use the Browse button to search for a file. Maintenance batch files must have a file extension of .MNS.

Individual Client Details - Parameters Page

The Parameters page is used to personalize a Hybrid RPL image to contain information for an individual client. The values you specify on this page are passed to Hybrid RPL image batch files. The parameter values specified on this page are *unique* for each client using this profile.

Before you can specify parameter *values* on this page, you must first specify the corresponding parameter *names* in the Client Parameters page of the Software Profile Details notebook and assign the client to that profile. **Do not process the assignment until you fill in the values on this page.**

For more information, see “Passing Parameters to Image Batch Files” on page 65 and “Software Profile Details - Client Parameters Page” on page 53.

Name	Value	
COMPNAME	%NAME	Describe 1 ...
IPADDR	9.180.64.20	Describe 2 ...
HOSTNAME	JOHN	Describe 3 ...
FIRSTNAME	john	Describe 4 ...
LASTNAME	smith	Describe 5 ...
PRODUCTID	8374-PAS-93783-QQ911	Describe 6 ...
P7		Describe 7 ...
P8		Describe 8 ...

The following fields are available on this page:

- Name

The parameter names (COMPNAME, IPADDR, HOSTNAME, and so on) are taken from the Client Parameters page of the Software Profile Details notebook. See “Software Profile Details - Client Parameters Page” on page 53 for more information. You cannot edit the names from the Individual Client Details notebook

- Value

The Value fields allow you to use up to 24 characters to define a value for the corresponding parameter name. These *values* are passed to a final-image batch file (.LCI file), a maintenance batch file (.MNS file), or a customization batch file (.BAT) as automatic responses to Parameter requests embedded within these files.

- Describe

When you press the Describe button, a text-edit box pops up in which you can enter a parameter description. This description can be up to 127 characters long.

Using the preceding illustration as an example, in a batch file that has the line:

```
DEDITD /R /NO c:\lancli\LANCLI.reg dummy_IPAddr %IPADDR%
```

the value returned would be:

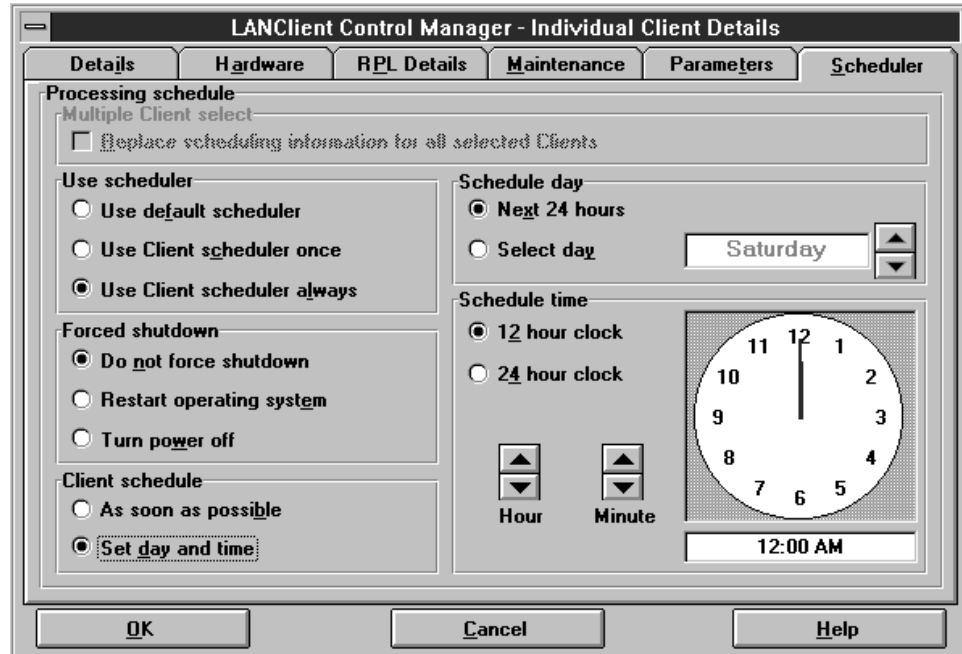
```
9.180.64.20
```

Important: Be careful when reassigning clients to new software profiles. The parameter values from this page must match those requested from any .LCI files or .MNS files that the client uses in the new software profile.

Individual Client Details - Scheduler Page

The Scheduler page allows you to specify the date and time that LANClient Control Manager begins processing the changes that have been made to the selected clients. (For more information on processing changes, see “Processing Changes Within LANClient Control Manager” on page 22.) This page specifies the date and time that changes to the clients are performed. Scheduled changes are placed on the list of actions to be taken in the Progress and Errors window after the Process button is selected. You must select the Process button to start scheduled jobs.

Important: Use the Scheduler for the Defaults notebook and the Individual Client Details notebook with care. For example, if you incorrectly set the Scheduler for 3 *p.m.* instead of 3 *a.m.*, and specify the forced shutdown or restart operating system options, the client workstations are immediately restarted in the middle of the working day. Also, if you set the Scheduler to update client workstations during an overnight process, warn end users who might be running overnight processing jobs of their own that their workstations will be shut down at the specified time and any end-user processing jobs in progress at that time will be terminated.



- Multiple Client Select

This box is disabled and grayed unless multiple clients are selected. When multiple clients are selected and this box is checked, this schedule will be used for all selected clients.

- Use Scheduler

There are three options for Use Scheduler:

- Use Default Scheduler

If this option is selected, all functions on this page are disabled and the Scheduler of the Defaults notebook is used.

- Use Client scheduler once

If this option is selected, the schedule information on this page is used for the next client process only, and then the client reverts to using the Scheduler of the Defaults notebook.

- Use Client scheduler always

If this option is selected, the schedule information on this page is retained and used for all future processes.

- Forced Shutdown

LANClient Control Manager uses NetFinity software to remotely shut down and restart client workstations before processing changes. The power-down capability of NetFinity is currently limited to client workstations running Windows 95. The following requirements must be met before a forced shutdown will function correctly:

- NetFinity Manager (version 5.0 or greater) must be installed on the workstation or server on which you have LANClient Control Manager installed.
- NetFinity Services (version 4.00.2 or greater) or NetFinity Manager (version 5.0 or greater) must be installed on each client workstation you want to shut down or restart.
- NetFinity Manager must know about the clients. To ensure NetFinity knows about all affected clients, you must perform the following procedure:
 1. Start NetFinity Manager from your administrator console.
 2. From the main window of NetFinity, select Remote System Manager.
 3. Open a new group and give it a name (for example, "All_Clients").
 4. From the NetFinity Manager System pull-down menu, select Discover Systems. The clients appear in the group window as they are discovered.

For more information on the Default Client Restart, see “Defaults Notebook - Processing Page” on page 26.

- Do not force shutdown

If the client workstation is still operating when the scheduled process time arrives, the workstation will not be shut down and restarted. The RPL download takes effect when the workstation is next restarted by the user.

- Restart operating system

Take care when selecting this option. If the client workstation is on when the scheduled time arrives, the workstation is restarted through NetFinity, even if it is processing a job. Any jobs in process are terminated and any unsaved data is lost.

- Turn power off

The Wake on LAN feature must be enabled in the Processing page of the Defaults notebook. If the Turn power off option is checked, the client workstation will be powered off through NetFinity and then powered on through Wake on LAN to perform a clean startup.

The following options are available if either Use Client scheduler once or Use Client scheduler always is selected under Use Scheduler.

- Client schedule

- As soon as possible

If you select this button, the changes process as soon as you click on the Process button in the Installation/Maintenance window.

- Set day and time

Setting a date and time enables LANClient Control Manager to process the changes unattended, during the day and time of your choice.

Note: If you use the Scheduler to set a specific date and time, you must still click on the Process button and leave the program running for the scheduled changes to take place. Clicking on the Process button places the scheduled changes in the processing queue of the Progress and Errors window, and when the specific day and time arrives, the scheduled changes are processed.

- Day and Time

The day and time fields are available only if you have selected the Set Day and Time button. Select these fields using the following values:

- Schedule day

- Next 24 hours

Processing takes place as soon as the specified time is reached (after the scheduled job is placed in the processing queue by clicking on the **Process** button).

- Select Day

Selects the desired day to process the changes. Processing takes place as soon as the specified day and time is reached after the scheduled job is placed in the processing queue by clicking on the **Process** button.

- Schedule time

- 12 hour clock displays a clock using the 12-hour format (a.m. and p.m.).

- 24 hour clock displays a clock using the 24-hour format.

- Hour selects the hour using the up and down arrows.

- Minute selects the minute using the up and down arrows.

- Clock Face

The clock face allows you to set the time manually.

- The primary mouse button sets the minute.

- The secondary mouse button sets the hour.

Software Profile Details Notebook

Information about each software profile is managed in the Software Profile Details notebook. This notebook displays when you edit configuration details of an existing software profile or when you create a new software profile.

For more information on managing software profiles, such as creating, viewing, or editing profiles, see “Managing Software Profiles” on page 72. Also, for general information on software profiles, see “Software Profiles” on page 10.

To access a Software Profile Details notebook, do one of the following:

- Double-click on an existing software profile within the Installation/Maintenance window.
- Create a new software profile. For more information, see “Creating a Software Profile” on page 72.

The Software Profile Details notebook contains the following pages:

- Details

This page contains the profile name, profile type, and a description of the software.

- Minimum Hardware

This page contains information about the hardware required for the specific software profile.

- RPL Details

This page contains information about the remote program load for the software profile.

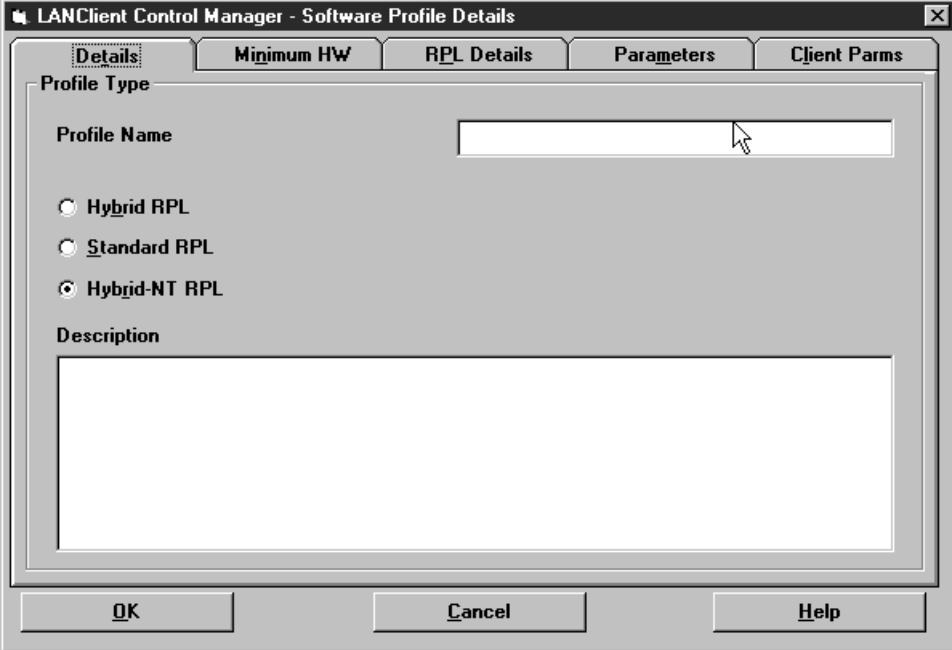
- Parameters

This page contains information about custom parameters that are common for all clients assigned to the software profile.

- Client Parameters

This page contains information about custom parameters that are unique to individual clients assigned to the software profile.

Software Profile Details - Details Page



The Details page contains the following fields:

- Profile Name

The name of each software profile must be unique. Give the profile a descriptive name that identifies the group of clients for which it is intended or the job the profile is designed to do.

- Hybrid RPL

Select this button if the profile will be using the Hybrid RPL process to download either a Windows 95 image or a DOS/Windows image to the client's hard disk.

- Standard RPL

Select this button if the profile will be downloading a standard RPL image to the client's memory.

- Hybrid-NT RPL

Select this button if the profile will be used to automatically install the Windows NT Workstation operating system (with or without applications) on the client's hard disk, using a Windows NT Server Distribution Sharepoint (an area on your server where the \I386 directory from the Windows NT Workstation CD has been copied).

- Description

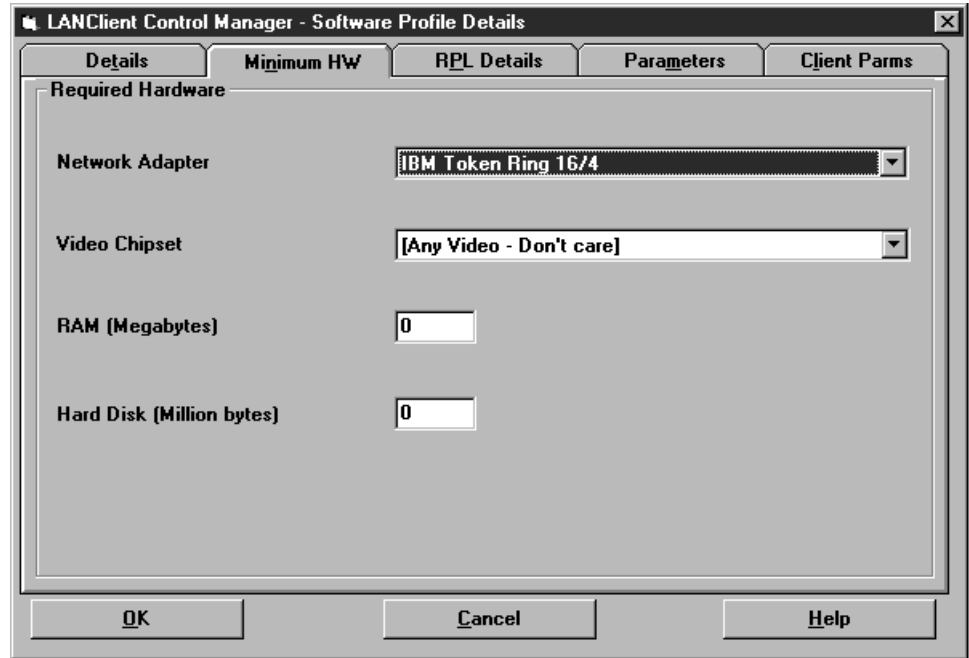
Use this space to write a description of the software profile. For example, for a standard RPL image, you can describe the contents of the image, or for a Hybrid RPL image, you can describe what the various batch files will do.

Software Profile Details - Minimum Hardware Page

The Minimum Hardware page contains the following fields:

- Network Adapter

Select a network adapter from the list available. An example is shown in the following illustration.



The screenshot shows a dialog box titled "LANClient Control Manager - Software Profile Details". It has five tabs: "Details", "Minimum HW", "RPL Details", "Parameters", and "Client Params". The "Minimum HW" tab is selected. Under the "Required Hardware" section, there are four fields:

- Network Adapter:** A dropdown menu showing "IBM Token Ring 16/4".
- Video Chipset:** A dropdown menu showing "[Any Video - Don't care]".
- RAM (Megabytes):** A text input field containing "0".
- Hard Disk (Million bytes):** A text input field containing "0".

At the bottom of the dialog box, there are three buttons: "OK", "Cancel", and "Help".

If your adapter is not on the list, or if the clients assigned to this profile will be using varying network adapters, choose **Any Adapter - Don't care**. This setting allows the image to be installed on any client.

- Video Chipset

Select a video chipset from the list available. If your video chipset is not on the list, or if the clients assigned to this profile are using varying video chipsets, choose **Any Video - Don't care**. This setting allows the image to be installed on any client.

- RAM

Enter the minimum amount of RAM required to download and use the software controlled by this profile. If you enter a value of zero, LANClient Control Manager ignores the minimum RAM requirements. The memory specified is in units of 1 048 576 bytes.

- Hard Disk

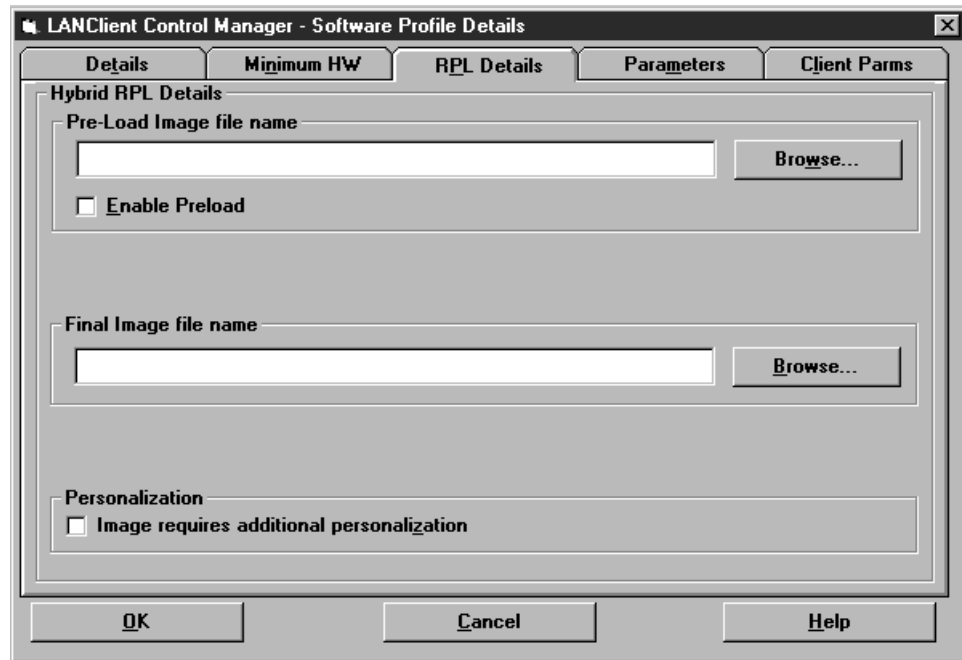
Enter the minimum amount of hard disk space to be used by software downloaded using this profile. If you enter a value of zero, LANClient Control Manager ignores the minimum hard disk requirements. The hard disk space specified in units of 1 000 000 bytes.

Software Profile Details - RPL Details Page

The appearance of this screen is directly related to the type of RPL selected in the Details page of this notebook. See “Software Profile Details - Details Page” on page 46 for more information.

Hybrid RPL Details

If you have selected the Hybrid RPL option on the Details page, you can specify the file names for the preload and final-image batch files.



- Preload Image

- File Name

Type in the path and name of your preload-image batch file, or use the **Browse** button to locate the file. The file extension for preload image batch files is .LCP.

The preload-image batch file specifies the actions to be performed at the client before downloading the final image. The preload-image batch file is normally used to run FDISK on a new client workstation. You must create the preload-image batch file yourself. A single preload-image batch file can be used by multiple clients and multiple software profiles.

- Enable Preload

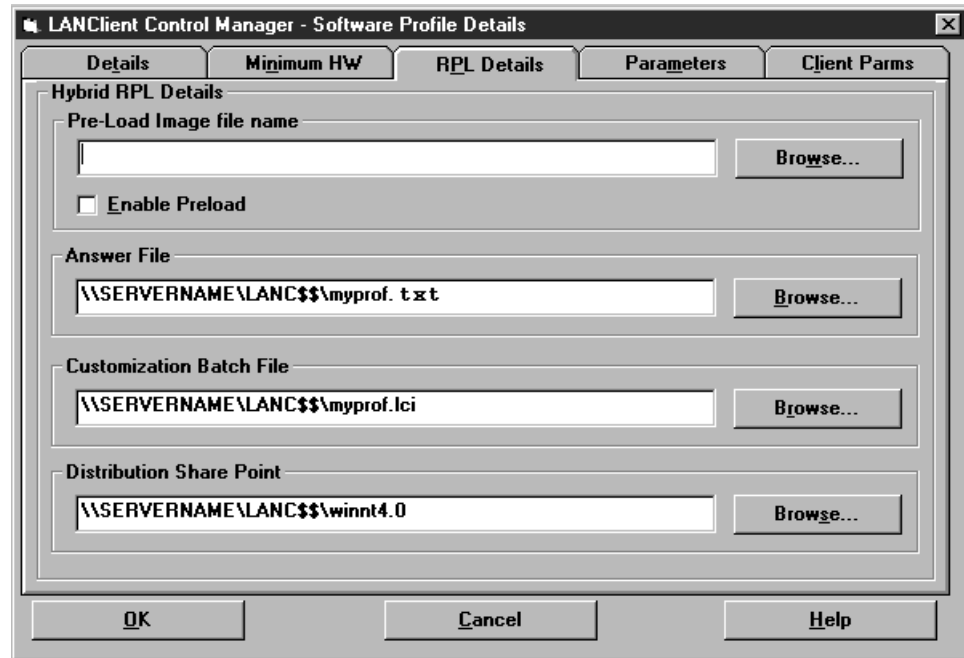
Check this box to enable the specified preload-image batch file to be downloaded to the client. Uncheck this box to disable the specified preload-image batch file to be downloaded to the client.

- Final Image

Type in the path and name of your final-image batch file, or use the **Browse** button to locate the file. The file extension for final-image batch files is .LCI. You must create the final-image batch file yourself. A single final-image batch file can then be used by multiple clients.

Hybrid-NT RPL Details

Hybrid-NT RPL is used only to install a Windows NT Workstation image from a Windows NT Server.



If you have selected the Hybrid-NT RPL button on the Details page of this notebook, you can specify the following:

- Preload Image

Type in the name and location of your preload-image batch file, or use the Browse button to locate the file. The preload-image batch file specifies the actions to be performed at the client before downloading the final image. In the case of Hybrid-NT RPL, the client workstation hard disk is automatically formatted before downloading and installing the NT Workstation files. Therefore, use a preload-image batch file only if you want to change the partition configuration of the client workstation hard disk before the automatic formatting of drive C (for example, if you need to partition the hard disk into two separate partitions). You must write the preload-image batch file yourself to meet your specific requirements. A single preload-image batch file can be used with multiple software profiles. The file extension for a preload-image batch file is .LCP. For additional information, see "Preload-Image Batch File" on page 128.

- Answer File

The answer file allows you to create a set of responses that will be passed to the Windows NT Workstation installation process to allow seamless installation. A sample answer file (UNATTEND.TXT) is shipped with LANClient Control Manager.

- Customization Batch File

The customization batch file is a batch file you must write. It will run the program DEDITD.EXE (supplied with LANClient Control Manager). DEDITD.EXE is a text-replacement utility that replaces parameters within the Answer file with values from the Parameters page of the Software Profile Details notebook and the Client Parameters page of the Individual Client Details notebook.

- Distribution Sharepoint

The Distribution Sharepoint is the directory on your server where you have copied the contents of the \I386 directory from the Windows NT Workstation installation CD. Use the **Browse** button to locate the sharepoint.

Important:

- The Distribution Sharepoint must always be specified using the full UNC path:

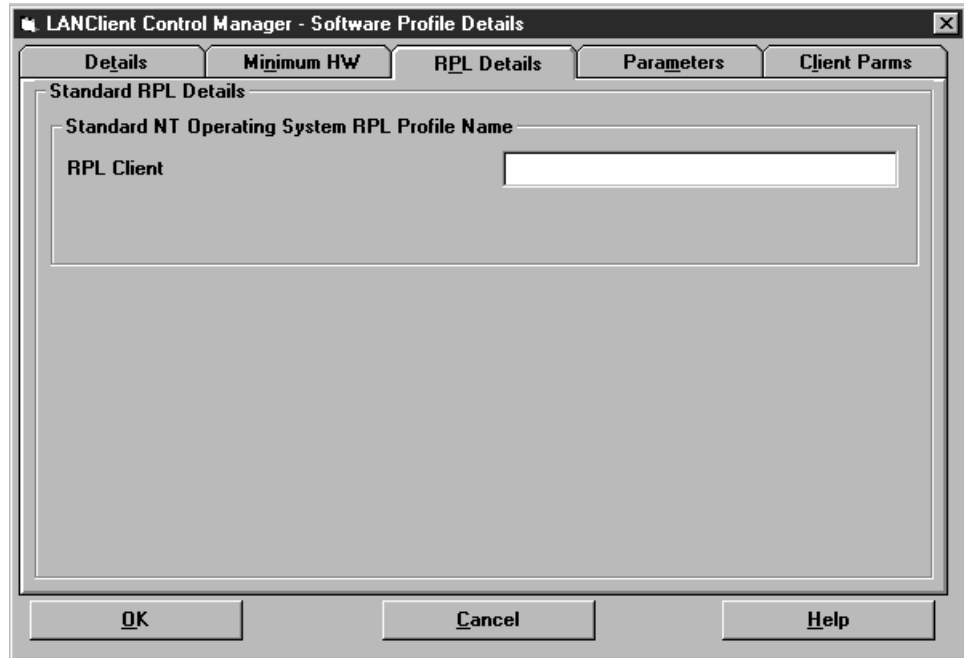
\\servername\LANC\$\$\sharepoint

where LANC\$\$ has been automatically mapped by LANClient Control Manager to point toward *\LCCM_install_dir\CLNTFILE*. The Sharepoint directory must always reside under the \CLNTFILE directory.

- If you intend to run LANClient Control Manager from a remote workstation, you must also use the full UNC path for specifying all other files and directories (as shown in the answer file and customization batch file paths shown in the illustration on page 49).

Standard RPL Details

If you have selected the Standard RPL button on the Details page, you can specify the final image name.



Type in the name of your standard RPL image or use the **Browse** button to choose from the list of available images. For more information on creating a standard RPL image, see “Creating a Standard RPL Image” on page 61.

Software Profile Details - Parameters Page

This page specifies a group of named parameters that are passed to the Hybrid RPL final-image batch file. The parameter values specified on this page are *common* for each client using this profile.

Note: If you have parameters that need to be unique for each individual client, you must enter them in the Client Parameters page of this notebook. For more information, see “Software Profile Details - Client Parameters Page” on page 53.

The following fields are available for this page.

- Name

You can specify up to 16 characters for the parameter name. The Name fields correspond to parameter names used in the final-image batch files (.LCI files). In these batch files, the parameter names are always prefixed and suffixed by a percentage (%) sign. For example, in the following illustration, the first parameter name, COMPANY, would be written in an image batch file as %COMPANY%.

The screenshot shows the 'Parameters' tab of the 'LANclient Control Manager - Software Profile Details' dialog. The title bar reads 'LANclient Control Manager - Software Profile Details'. The dialog has five tabs: 'Details', 'Minimum HW', 'RPL Details', 'Parameters' (selected), and 'Client Parms'. Below the tabs, the text reads 'Parameters for all Clients assigned to this Profile'. There is a table with two columns: 'Name' and 'Value'. The table contains the following entries:

Name	Value
COMPANY	XYZ_International
DOMAIN	AGCP09DL
WORKGROUP	SALES
NAMESERVER	9.180.64.131
IPMASK	255.255.255.0
GATEWAY	9.180.64.1

To the right of each row is a 'Describe' button (e.g., 'Describe 1 ...'). At the bottom of the dialog are three buttons: 'OK', 'Cancel', and 'Help'.

- Value

You can specify up to 24 characters for the parameter value (no spaces are permitted). This is the value that is passed to final-image batch files for the parameter names specified in the corresponding Name field. In the previous illustration, "XYZ_International" is returned as a value to a final-image batch file that had a %COMPANY% parameter specified.

- Describe

When you press the Describe button, a text edit box pops up in which you can enter a parameter description. This description can be up to 127 characters long.

For an example of batch files that use these parameters, see Chapter 6, “Example Files” on page 125.

Software Profile Details - Client Parameters Page

This page specifies a group of named parameters that are passed to Hybrid RPL final-image batch files. The parameters specified on this page are *unique* for each client using this profile.

The following fields are available for this page.

- Name

You can specify up to 16 characters for the parameter name. The Name fields correspond to parameter names used in the final-image batch files (.LCI files). In these batch files, the parameter names are always prefixed and suffixed by a percentage (%) sign. For example, in the following illustration, the first parameter name (COMPNAME) would be written in an image batch file as %COMPNAME%. The names specified on this page are passed to the Parameters page of the Individual Client Details notebook, where unique values can be provided for each individual client.

Name	Default value	
COMPNAME	%NAME	Describe 1 ...
IPADDR		Describe 2 ...
HOSTNAME		Describe 3 ...
FIRSTNAME		Describe 4 ...
LASTNAME		Describe 5 ...
PRODUCTID		Describe 6 ...
		Describe 7 ...
		Describe 8 ...

- Default Value

In most cases, the default values can be left blank because unique values will be defined in the Parameters page of the Individual Client Details notebook. However, you can specify up to 24 characters for a default parameter value (no spaces are permitted). The default value is passed to the Parameters page of the Individual Client Details notebook (where it can be overwritten, if necessary). RPL image batch files that request client parameters take the value from the Parameters page of the Individual Client Details notebook.

In the illustration shown, %NAME is a reserved value that has special characteristics. Like any other values specified on this page, %NAME is passed to the Parameter page of the Individual Client Details notebook; but unlike other values, it automatically picks up the unique name of the client (from the Name field on the Details page of the Individual Client Details notebook) and passes it to any batch file that has the parameter name %COMPNAME%. See "Individual Client Details -

Details Page” on page 32 and “Parameter Exceptions” on page 67 for more information.

- Describe

When you press the Describe button, a text-edit box pops up in which you can enter a parameter description. This description can be up to 127 characters long.

Additional Help

When you are running LANClient Control Manager, you can find onscreen help by doing one of the following:

- Press **F1**.
- Select **Help** from the menu bar of the Installation/Maintenance window.

Chapter 4. Procedures

Adding Clients	56
Installing New Client Workstations	56
Setting Specific Defaults Prior to Scanning	57
Adding Client Workstations to the Database	58
Using the Scan Feature	58
Adding a New Client Manually	59
Working with Images	61
Creating a Standard RPL Image	61
Creating a Hybrid RPL Image	62
Using a Donor Workstation Startup Image	63
Using Alternative Methods for Transporting Images	64
Passing Parameters to Image Batch Files	65
Parameter Exceptions	67
Creating a Hybrid-NT RPL Image	67
Creating a BIOS Update Image	68
Creating a CMOS Settings Image	70
Managing Software Profiles	72
Creating a Software Profile	72
Viewing or Editing an Existing Software Profile	72
Deleting a Software Profile	73
Managing Clients	74
Assigning Clients to Software Profiles	74
Unassigning Clients from Software Profiles	75
Temporarily Disabling a Client	75
Deleting a Client	75
Showing Client Mismatches	75
Selecting How Clients are Displayed	76
Searching for Specific Clients	76
Modifying an Existing Client	77
Forcing an Image Reload at Next Startup	77
Changing or Deleting a BIOS Administrator Password	78
Updating the BIOS Level	78
Assigning Clients a CMOS Settings Image	79
Assigning Clients a Maintenance File	80
Managing Settings at the Client Workstation	81
Allowing Local Hard Disk Startup	81
Using Dual Startup Sequences	81
Changing the BIOS Administrator Password for Service	82
Installing Network Adapter Device Drivers	84

Adding Clients

This section provides instructions on setting up client workstations so that they can be used with LANClient Control Manager. Also, instructions for adding new client workstations to the LANClient Control Manager database are provided.

Installing New Client Workstations

Objective: To install new client workstations that can be used with LANClient Control Manager.

The following instructions describe the general steps for installing new client workstations for use with LANClient Control Manager. You might need to refer to the documentation that comes with each workstation for specific instructions.

To install new client workstations:

1. Verify that each workstation contains one of the following:
 - Integrated Ethernet or token-ring subsystem
 - Ethernet or token-ring adapter with integrated RPL function
 - Ethernet or token-ring adapter with optional RPL ROM chip (module)
2. Set up the workstations according to the manufacturer's instructions.
3. Connect network cables to the workstations and to network receptacles.
4. Turn on each workstation and enter the Configuration/Setup Utility program. To access the Configuration/Setup Utility program on many IBM workstations, you must press F1 while the workstation is starting up.
5. The relevant settings within the Configuration/Setup Utility program must be enabled for RPL.

- a. If there is a **Network Boot** (or equivalent) option, choose RPL for this setting.

Note: Some IBM workstations with an integrated Ethernet subsystem have an **Ethernet Support** category in the Configuration/Setup Utility program. Within this category is the **Network Boot** option. Ensure that RPL is selected for this option. For more details, see the documentation that comes with the IBM workstation.

- b. Do one of the following:
 - In the startup sequence menu, select **network** as the first startup device.
 - If you want to be able to start the computer from a diskette, in the startup sequence menu, select the diskette drive as the first startup device and network as the second startup device.

Note: Some IBM workstations might already be enabled to start up from the network. For more information, see the documentation that comes with the workstation.

Also, some IBM workstations might have a dual startup sequence. The first sequence is the primary startup sequence of the workstation and the

second sequence is the Automatic Power On startup sequence, which is the startup sequence used when a client workstation is started using Wake on LAN. For more information about using the second sequence, see “Using Dual Startup Sequences” on page 81. For more details on setting the startup sequences, see the documentation that comes with the IBM workstation.

- c. On each workstation that supports the Wake on LAN protocol, set Wake on LAN to enabled.
6. Save any changes you made and exit the Configuration/Setup Utility program.
 7. Restart each client workstation.
 8. Do one of the following:
 - If you plan to automatically scan new clients into the LANClient Control Manager database, set the appropriate values in the Defaults notebook. For more information, see “Setting Specific Defaults Prior to Scanning.” If you have already set the values in the Defaults notebook, see “Using the Scan Feature” on page 58.
 - If you plan to add a new client to the LANClient Control Manager database by manually creating an Individual Client Details notebook, see “Adding a New Client Manually” on page 59.

Setting Specific Defaults Prior to Scanning

Objective: To set specific defaults of LANClient Control Manager so that each newly scanned client workstation is assigned the appropriate values.

This section is directly related to the scan feature of LANClient Control Manager. If you plan to manually add clients to the LANClient Control Manager database, this section does not apply. For more detailed information on all the fields within the defaults notebook, see “Defaults Notebook” on page 24.

To set defaults specific to the scan process:

1. Select **Options** from the menu bar of the Installation/Maintenance window.
2. Select **LANClient Control Manager Defaults**.
3. Enter the appropriate information in the following fields:
 - General page - BIOS administrator password
 - General page - Common base name
 - Scan page - All fields

If you change the BIOS administrator password, keep the following rules in mind:

- The default BIOS administrator password is assigned to new client workstations only during the scan process. If the default BIOS administrator password is set or changed after the client has been scanned, the password is not assigned.
- Changing the default BIOS administrator password does not affect the passwords of clients that have already been added to the LANClient Control Manager database. In the Individual Client Details notebook, the BIOS administrator password can be changed for clients that have already been created. For more information see “Individual Client Details - Maintenance Page” on page 38.

- The BIOS administrator password code is based on the positions of the keys, not the characters typed in. If any of your clients use a different-language keyboard or a keyboard layout different from the keyboard you use to interact with LANClient Control Manager, the BIOS administrator password might not be recognized when typed in from the client keyboard. Ensure that you use only characters that occur in the same position on all keyboards used. If the field is left blank, the password is disabled.

Adding Client Workstations to the Database

Objective: To add a new client workstation to the LANClient Control Manager database using one of the two following methods:

- Automatically, by using the *scan* feature
- Manually, by using the Individual Client Details notebook

For more information, see “Using the Scan Feature” or “Adding a New Client Manually” on page 59.

Using the Scan Feature

Before you begin:

- Ensure that the client workstations you want to add are installed correctly. For details, see “Installing New Client Workstations” on page 56.

Important: The new client workstations being scanned must be manually turned on prior to or during the scan process. The scan feature does not wake up new client workstations that are turned off.

- Ensure that the desired values are set in the Defaults notebook. For details, see “Setting Specific Defaults Prior to Scanning” on page 57.
- If you have set the defaults (on the Scan page of the Defaults notebook) to collect user data when the new client workstation is scanned, ensure that someone is at each client workstation to answer the questions.

To start the scan process:

1. At the administrator console, start the scan process by clicking on the **Start** button in the Installation/Maintenance window.

The following actions occur:

- a. The text on the button changes to **Stop** and the scan icon becomes animated to indicate that a scan is in progress.
- b. The scan function collects details about new clients that have been attached to the network and for which no standard RPL or Hybrid RPL image has been specified. The details collected from a scan include:
 - Network address
 - Type and model number
 - Serial number
 - Amount of random access memory (RAM) installed
 - Hard disk drive capacity
 - Video adapter or chipset
- c. If you have set the Defaults notebook to ask questions about the client workstation, onscreen prompts display at the client workstation. An end-user response is required. If a timeout period has been set, the prompts must be

answered in the allotted time or else the processing will continue without collecting the end-user input.

- d. If a default BIOS administrator password was defined in the General page of the Defaults notebook, the password is assigned to each new client detected during this scan operation.
- e. Each new client workstation is placed in the Unassigned Clients list of the Installation/Maintenance window.

2. To stop the scan process, click on the **Stop** button. All client workstations that were properly installed are now added to the LANClient Control Manager database.

Note: An optional method for scanning is to start the scan process, go to the client workstations and install them, and then turn on each workstation. By doing this, you, as the installer, can personally address any prompts that have been set for an end-user response.

This optional method might be preferable if you are using end-user prompts, because you can answer the prompts as soon as you are finished installing the client, and only one trip is required. If you are not using prompts, you just plug in the client, switch it on, and proceed to the administrator console of the program.

LANClient Control Manager cannot start any other operations until the scan process is stopped.

What to do next:

- If you have already created the software profile, assign each client to the appropriate software profile. For more information, see “Assigning Clients to Software Profiles” on page 74.
- If the appropriate software profile does not exist, create it. For more information, see “Creating a Software Profile” on page 72.

Adding a New Client Manually

As an alternative to the scan process, which scans the entire network, you can enter the details of an individual new client directly into the Individual Client Details notebook.

Before you begin, collect the following information for the new client workstation:

- Network address (see “Client Address” on page 33 for more details)
- Serial number (see the documentation provided with the client workstation for more details)

To manually add a new client:

1. Select **Client** from the menu bar of the Installation/Maintenance window.
2. Select **Create new**.
3. When the Individual Client Details notebook opens, enter information in the relevant fields. To create a new client, at a minimum you must record the following client information in the Details page:
 - A unique client name
 - A unique network address

4. After you have entered the appropriate information, select **OK**.
5. Select the **Process** button in the Installation/Maintenance window.

An alternate method of creating a new client is to copy an existing client and use the relevant information that applies to the new client.

To create a new client from a copy of an existing client:

1. Click on an existing client from the Installation/Maintenance window.
2. Select **Client** from the menu bar.
3. Select **Create copy**.
4. When the Individual Client Details notebook appears, all fields have been copied except those from the Details page. Enter information in the Details page for the new client, and alter any other relevant information. The client name and network address must be entered and must be unique for the new client to be fully created.
5. After you have entered the appropriate information, select **OK**.
6. Select the **Process** button in the Installation/Maintenance window.

What to do next:

- If you have already created the software profile, assign each client to the appropriate software profile. For more information, see “Assigning Clients to Software Profiles” on page 74.
- If the appropriate software profile does not exist, create it. For more information, see “Creating a Software Profile” on page 72.

Working with Images

This section contains instructions for creating the image and batch files that you use with LANClient Control Manager.

Creating a Standard RPL Image

Objective: To create a standard RPL image for use with LANClient Control Manager.

LANClient Control Manager uses a standard RPL image to start up client workstations without the use of the local hard disk drives of the workstations. For more information on RPL and images, see “Images” on page 7.

The standard RPL image is created using the Microsoft Windows NT Remoteboot Manager program. You need to use the RPL (Remoteboot) management tools of Windows NT to do this, as LANClient Control Manager does not provide these functions. You must refer to your Windows NT documentation for full information on creating a standard RPL client.

To create the image:

1. Create a Standard Windows NT RPL (Remoteboot) client. For additional information, refer to your *Windows NT Server Installation Guide* produced by the Microsoft Corporation, or the *Windows NT Workstation Resource Kit* produced by Microsoft Press.
2. At each client using this profile:
 - a. Ensure that each new client workstation is set up correctly for RPL. (For details see “Installing New Client Workstations” on page 56.)
 - b. Restart the client workstations.

To create the software profile:

1. Return to the LANClient Control Manager interface.
2. Use the scan function to locate new clients. If you cannot locate clients using the Scan function, see “Installing Network Adapter Device Drivers” on page 84.
3. Select **Profile**.
4. Select **Create New**. A blank Software Profile Details notebook appears.
5. On the Details page:
 - a. Type the name of the new profile.
 - b. Check the Standard RPL check box.
6. On the RPL Details page, type the image file name in the RPL Client field. This is the same profile name you created within Remoteboot Manager. You can also use the **Browse** button to locate the desired file.
7. Enter all other required information on all pages in the notebook. For additional information, see “Software Profile Details Notebook” on page 45 and “Passing Parameters to Image Batch Files” on page 65.
8. When you are finished entering the information, select **OK** to save the information and close the notebook.

To assign a profile to the client and process the changes:

1. In the Installation/Maintenance window, assign clients to the new software profile.
For additional information, see “Assigning Clients to Software Profiles” on page 74.
2. Click on the **Process** button to save changes to the LANClient Control Manager database and begin processing.

Creating a Hybrid RPL Image

Objective: To create a Hybrid RPL image and the associated batch files that are used to transport the image and prepare it for use.

For general information on RPL and images, see “Images” on page 7.

The following procedure contains general instructions for creating a Hybrid RPL image. For detailed information, see Chapter 5, “Hybrid RPL Training Exercises” on page 89.

To create a Hybrid RPL image:

1. Create the image (operating system, applications, and so on) on a donor workstation and test it thoroughly.
2. Create a backup batch file to prepare the image and transport it to the server.

When copying directories using XCOPY, do not exceed the limit of 56 characters in the path name. If you have an especially deep file structure (many sub-directories under the main directory), you might encounter a problem if your extended directory structure becomes too long. This can cause XCOPY to fail, as it runs out of space to store all the names of the directories, sub-directories, and files.

If you encounter this problem, perform one of the following:

- Cut down the length of the directory structure involved. For example, when copying a new final image from a donor workstation to your server, copy the files to a top level directory on your server (instead of a directory under the LANClient Control Manager directory). Make sure this top level directory has a short name (for example \DW59HYB1).
- Use another program for copying files between your server and your clients (for example, PKZIP from PKWARE Incorporated). For more information, see “Using Alternative Methods for Transporting Images” on page 64.

Also, you might have to modify long file names or change hidden and system file attributes before using XCOPY. For more information, see “LCATTRIB.EXE” on page 133 and “DOSLFNBK.EXE” on page 132.

3. Transport the image to the server. For more information on copying files from the donor workstation to the server, see “Using a Donor Workstation Startup Image” on page 63.
4. Create batch files with the appropriate file name extensions.
 - a. If you choose, you can create a preload-image batch file with the .LCP file name extension.

This batch file is used to partition the hard disk on the client before the final image is downloaded. The preload-image batch file executes a program such as FDISK.

When you use the FDISK command, you must also create a response file in order to run this command unattended. You must use an editor that allows input of nonprintable characters because the response file must contain the ENTER and ESC control characters. For more details, see “Response Files for the FDISK Command” on page 134.

- b. Create a final-image batch file with the .LCI file name extension.

This batch file executes such programs as COPY or XCOPY on the client to transport all required software from a directory on the server to the hard disk of the client. You might need to use specific commands for restoring attributes for system and hidden files, for restoring long file names, and for personalizing the image.

5. Copy the batch files to the server.

What to do next:

- Create the software profile. For more information on creating the software profile, see “Creating a Software Profile” on page 72.
- To find examples of creating Hybrid RPL images for specific servers, see Chapter 5, “Hybrid RPL Training Exercises” on page 89.

Using a Donor Workstation Startup Image

Use the following procedure to create and assign a donor workstation startup image. This procedure attaches the donor workstation to the LAN for transporting images, and it also gives you read/write access to the server.

To create a donor workstation startup image:

1. Use a text editor to create a final-image batch file (.LCI) by typing the following:

```
pause  
pause
```

2. Save the file and name it any name you want, but make sure it has an .LCI file extension. For the purpose of this discussion, we will call this file DONORBT.LCI.
3. Copy the DONORBT.LCI file into the following directory:

```
\LCCM_install_dir\CLNTFILE
```

4. Create a Software Profile Details notebook for DONORBT.LCI:
 - a. Within the Installation/Maintenance window, select **Profile** and then select **Create New**.
 - b. On the Details page:
 - 1) Type **Donor Boot** in the Profile Name field.
 - 2) Click on the Hybrid RPL radio button.
 - c. On the Minimum Hardware page:
 - 1) Select the donor workstation network adapter from the drop down menu of the Network Adapter field.
 - 2) Select **Any Video - Don't Care** from the drop down menu of the Video Chipset field.
 - 3) Type **0** in the RAM field.

- 4) Type **0** in the Hard Disk field.
- d. On the RPL Details page, in the Final Image File Name field, use the Browse button to find the DONORBT.LCI file, then select it. Leave the other fields on this page blank.
- e. Select **OK** to save and close the notebook.

To assign the image to the donor workstation:

1. Within the Installation/Maintenance window, assign the donor workstation to the Donor Boot Image profile and click on the **Process** button.
2. Restart the donor workstation. A Hybrid RPL takes place on the donor workstation and establishes a LAN connection.
3. From the donor workstation keyboard, press **Ctrl + C** to escape from the Hybrid RPL. The LAN connection remains active, and a command prompt appears.
4. Type `net logoff` and press Enter.
5. Type `net logon` and press Enter.
6. Type your user ID and password, when prompted. You must log on as the network administrator. You now have read/write access to the appropriate drive. It is very important that you understand the operating system environment now present at the donor. The donor workstation hard disk is now drive D. Any statements in your backup batch file that refer to the donor workstation hard disk must use drive letter D. The environment now present at the donor workstation might affect the other drive letters and paths used in your backup batch file. For more details, see “Environment for Hybrid RPL” on page 6.

Once you have created a Donor Boot Image profile, you can use it over and over again to transport images from any donor workstation.

Using Alternative Methods for Transporting Images

Most of the examples and training exercises in this manual use XCOPY as the method of transporting images from the donor workstation to the server and from the server to the client workstation. Specific examples of using XCOPY are located in Chapter 5, “Hybrid RPL Training Exercises” on page 89. When looking over these procedures, you might notice that XCOPY has limitations with long file names, file attributes, and the number of characters that can be used in a path. Also, files transported with XCOPY are full size (no compression), which adds extra traffic on the LAN. You can avoid some of these limitations by using backup and restore programs or a program such as PKZIP.

The following examples show two methods of using the DOS version of the PKZIP program to transport an image from a donor workstation to a server and from a server to the client workstation. Other archive and backup/restore programs might have similar capabilities and can be used to achieve the same result.

Example 1: Using PKZIP as the transport mechanism to the server:

1. Install a licensed copy of PKZIP and PKUNZIP on the `\LCCM_install_dir\` or one of its sub-directories.
2. Create the image on the donor workstation and test it thoroughly.
3. Use the following PKZIP command in your backup batch file to compress (ZIP) the image into a single .ZIP file residing on the server.


```
I:\path_1\PKZIP I:\path_2\W95EXMP1.ZIP -r -P C:\*.*
```

where:

- *I:* is the server drive
- *path_1* is the path to the directory on the server containing PKZIP
- W95EXMP1.ZIP is the name of the ZIP file to be created
- *path_2* is the path to the directory you created for the image
- *C:* is the active partition of the donor workstation

Note: PKZIP attributes are case sensitive. You might want to use a different parameter for compression based on the load this method puts on your LAN. Refer to the PKZIP documentation for information about PKZIP attributes.

When you run your backup batch file from the donor workstation, a single .ZIP file is created on the server.

Example 2: Using PKUNZIP as the transport mechanism to the client:

In your final-image batch file, include the following line instead of the XCOPY statement:

```
I:\path_1\PKUNZIP -d I:\path_2\W95EXMP1.ZIP C:
```

where:

- *I:* is the server drive
- *path_1* is the path to the directory on the server containing PKUNZIP
- W95EXMP1.ZIP is the name of the ZIP file
- *path_2* is the path to the directory for W95EXMP1.ZIP
- *C:* is the hard disk of the client workstation

When the final-image batch file is run, the single compressed file on the server is unzipped on the client hard disk. For a complete example, see “Final-Image Batch File - Windows 95 Image” on page 130.

Passing Parameters to Image Batch Files

Parameters can be replaced automatically within image batch files using LANClient Control Manager. This is done during the image download process. In this way, you only need to create one generic image batch file for each software profile. The LANClient Control Manager utility program DEDITD.EXE is used to replace parameters.

Parameters can be replaced automatically within image batch files and within the Windows NT Workstation answer file (UNATTEND.TXT) using LANClient Control Manager. For additional information about the Windows NT procedure, see “Editing the Windows NT Workstation Answer File” on page 115.

1. Create the image batch file

If you have not already done so, create the image batch file you will be working with. This can be any type of batch file used with LANClient Control Manager, for example, a final-image batch file (.LCI) or a maintenance file (.MNS). In your image batch file, create environment variables (“dummy” entries, enclosed within percentage signs) where parameter values are required.

2. Create a software profile

If this is a new image, create a new software profile. For additional information, see “Software Profile Details Notebook” on page 45.

3. Set up the parameters common for all clients

- a. In the Installation/Maintenance window, select the profile you are working with.
 - b. Select **Configure** or double-click on the selected profile.
 - c. Click on the **Parameters** tab.
 - d. Enter the parameters that are common to all clients using this software profile. The Name fields must correspond to names you have given to parameters used in your batch files. Within the batch files, the parameter names must be enclosed within percentage (%) signs.
4. Set up the parameters that are unique for each client
- a. In the Installation/Maintenance window, select the profile you are working with.
 - b. Select **Configure** or double-click on the selected profile.
Click on the **Client Parm**s tab.
 - c. Enter the Names of each parameter. These Names will be copied automatically into the Parameters page of the Individual Client Details notebook for every client using this software profile. There are only three possible values you can enter at this stage. For additional information, see “Parameter Exceptions” on page 67.
 - d. Click on the **OK** button to save the changes to the Software Profile Details notebook.
 - e. If you have not yet assigned clients to this profile, you must do this now. For additional information, see “Assigning Clients to Software Profiles” on page 74.
 - f. In the Installation/Maintenance window, select the first client using this software profile. The Individual Client Details notebook is displayed. For additional information, see “Selecting Clients” on page 21.
 - g. From the Individual Client Details notebook, select the Parameters page. The available parameters (copied from the Client Parms page of the Software Profile Details notebook) are displayed.
 - h. Enter the Values for the available parameters. There are three parameter exceptions you can also specify as values on this page. For more details, see “Parameter Exceptions” on page 67.
 - i. Go back to step 4f and select the next client. Continue until you have assigned parameters for all clients.

5. Select the Image For Load (or Reload)

You must now select the image to be loaded on the client. There are several ways to do this, depending on what type of image you are working with. You can load the image on to a single client, a group of clients, or all clients using this software profile. For additional information, see “Selecting Clients” on page 21.

- If this is a new final image and you have followed all the above steps, simply click on the **Process** button to begin downloading the image, or specify a scheduled time and day for the download to take place (you can do this through the Scheduler of the Individual Client Details notebook or the Default notebook), then click on the **Process** button.
- If this is an updated final image, check the Mark Client for reload of image on next boot checkbox in the RPL Details page of the Individual Client Details notebook.

- If this is a maintenance image, check the Run maintenance file checkbox in the Maintenance page of the Individual Client Details notebook.

Parameter Exceptions

There are three character strings that are reserved for specific purposes when used as parameter values. If any of the reserved character strings are used as a value in either the Client Parameters page of the Software Profile Details notebook or the Parameters page of the Individual Client Details notebook, the character string picks up a preexisting value from the Details page of the Individual Client Details notebook.

Each of the following character strings picks up the values specified in the associated fields in the Details page of the Individual Client Details notebook.

- %CNAME%

This character string yields the name of the client.

- %CADDRESS%

This character string yields the address of the network adapter or network subsystem.

- %CSERIAL%

This character string yields the serial number of the client.

Creating a Hybrid-NT RPL Image

Objective: To create a Windows NT Workstation image and the associated files that are used to prepare the image for unattended installation.

LANClient Control Manager works in conjunction with the distribution features built into Windows NT Server and provides the ability to pass individual client parameter values to a common NT answer file instead of using the Windows .UDF file for each individual client.

This procedure provides a high-level overview of the steps required to create an image and the associated files required for unattended installation. A working knowledge of using Windows NT Server and editing the Windows NT Workstation answer file (UNATTEND.TXT) is required in order to perform this procedure. For additional information see “Editing the Windows NT Workstation Answer File” on page 115 and the following training exercises:

- “Installing Windows NT Workstation Without Applications” on page 103
- “Installing Windows NT Workstation With Applications” on page 111

Note: In order to achieve 100% unattended installation of Windows NT Workstation, all adapters and devices installed in or attached to the client workstation must support unattended installation. Some adapters and devices that do not support unattended installation will prompt the user at the client workstation for additional information or files during the Windows NT Workstation installation process. If you are unable to achieve 100% unattended installation, contact the manufacturer of the adapter or device, or refer to the Microsoft Knowledge Base on the World Wide Web for possible tips or fixes.

To create a Hybrid-NT RPL image:

1. Set up a directory to act as your Distribution Sharepoint under the following directory:

C:\LCCM_inst_dir\CLNTFILE\Dist_Sharepoint

where *C:\LCCM_inst_dir* is the drive and directory where LANClient Control Manager is installed and *\Dist_Sharepoint* is the directory of a specific sharepoint.

2. Create a sub-directory under your Distribution Sharepoint directory and name it I386.
3. From the Windows NT Workstation CD, copy the contents of the I386 directory and all of its sub-directories to the I386 directory in your Distribution Sharepoint. For example:

```
XCOPY D:\I386\*.* C:\LCCM_inst_dir\CLNTFILE\WINNT40\I386 /S /E /V
```
4. Create the following two directories to set up the directory structure for network device drivers:
 - *C:\LCCM_install_dir\CLNTFILE\Dist_Sharepoint\I386\%OEM%*
 - *C:\LCCM_install_dir\CLNTFILE\Dist_Sharepoint\I386\%OEM%\NET*
5. Under the *%OEM%\NET* directory, create a directory for each type of network adapter that your clients will be using. Next, copy the Windows NT device driver and OEMSETUP.INF file from the each network adapter device driver diskette into the appropriate network directory.
6. Edit the Windows NT answer file, UNATTEND.TXT to assign "dummy" parameter names, set unattended installation options, and set up network adapter information. (See "Editing the Windows NT Workstation Answer File" on page 115 for details.)
7. If you need to partition the client's hard disk into more than one partition, create a preload-image batch file. If you intend to use the client's hard disk as a single partition, a preload-image batch file is not needed. By default, Windows NT will format that entire client hard disk as a single partition.
8. Create the customization batch file using DEDITD commands to assign variables to the dummy names you used in the answer file. (See "Editing the Windows NT Workstation Answer File" on page 115 for details.)

What to do next:

Create the Hybrid-NT Software Profile for the Windows NT Workstation image. See "Creating a Software Profile" on page 72.

Within the Software Profile Details notebook:

- Fill in the Parameters page with the parameter names you used in the customization batch file and the associated values that are common for all clients using the profile (for example, the organization name).
- Fill in the Client Parameter page with the parameter names you used in the customization batch file that will have values unique to each individual client (for example, the Windows NT product identification number from the Certificate of Authenticity).

Creating a BIOS Update Image

Objective: To create a BIOS flash image to update the BIOS level of different client workstations on your LAN.

The BIOS level of the client is part of the information collected during the scan process. (For more details on the information collected during a scan, see "Using the Scan Feature" on page 58.) It might be necessary to upgrade the BIOS level because of:

- Improvements to BIOS function
- A need to change client workstation BIOS language
- Updates to the BIOS

If updates are required, the new files are made available by IBM through bulletin board systems, publicly accessible servers, or similar means. Once this information is available, you can download the BIOS code onto a diskette. For the purposes of the following procedure, this diskette is referred to as the BIOS flash diskette.

In LANClient Control Manager, updating the BIOS level for a client is a two-step process. First, you must create an image from the BIOS flash diskette. You do this through the Installation/Maintenance window of LANClient Control Manager. Once an image is created, you can perform the second step, which is using the Individual Client Details notebook to update the BIOS level for specific clients. For more information on this second step, see “Updating the BIOS Level” on page 78.

Important: Write protect the BIOS flash diskette before performing this procedure.

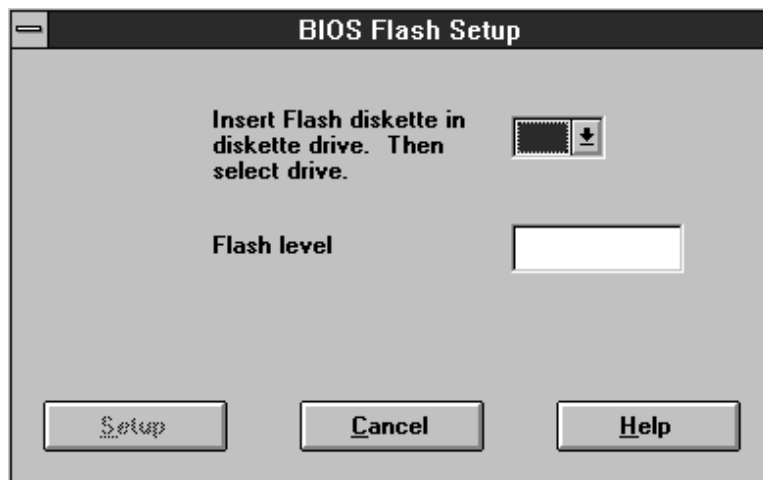
To create an image from a BIOS flash diskette:

1. Insert a BIOS flash diskette into the diskette drive.
2. Select **Tools** from the menu bar of the Installation/Maintenance window.
3. Select **Read BIOS flash diskette**.
4. In the BIOS Flash Setup window, select the diskette drive letter.

The diskette reads and the flash level displays. (The flash-level name is the volume label of the diskette).

5. Accept the flash-level name given or assign a new name. (In most cases, you should accept the default name.) This name is used by LANClient Control Manager to identify the BIOS level.

Note: If you change the level name generated from the BIOS flash diskette, and download this to a client, the client BIOS level shown on the BIOS setup screens of the client workstation will not match the Current BIOS Level field from the Maintenance page of the Individual Client Details notebook. This is because the BIOS program has the original level name embedded within the program code.



6. Select **Setup**.
7. A new directory, named after the flash level, is created under the *LCCM_install_dir\CLNTFILE\BIOS* directory, and the contents of the diskette are copied.
8. If you are overwriting an existing directory, you are warned of this and given the option to **Cancel** or **Overwrite**.

To assign this BIOS update image to different client workstations, see “Updating the BIOS Level” on page 78.

Creating a CMOS Settings Image

Objective: To create a CMOS settings image to use with different client workstations on your LAN.

CMOS is a small block of data that contains the BIOS configuration settings of a client workstation. You might want to create different CMOS images depending on the needs of the end user. For example, you might want to allow some clients access to their diskette drives, while restricting diskette-drive access for other clients.

Before you begin:

You must download the BIOS update diskette that matches the BIOS level you are using. IBM often provides updates that you can download from a bulletin board system (BBS) or the World Wide Web. From the new BIOS update diskette, you must use the CMOSUTIL.EXE program.

To create a CMOS settings image:

1. At a donor workstation:
 - a. Start up the workstation and access the Configuration/Setup Utility program. On many IBM workstations, you can access this program by pressing F1 during the power-on self-test (POST).
 - b. Change and save the desired settings as required.
 - c. Exit from the Configuration/Setup Utility program and restart the workstation. Ensure that the workstation starts up and functions properly.
2. Use the CMOSUTIL.EXE program to save the current settings of the donor workstation to a file that you name with the .CMS extension.
 - a. To run the CMOSUTIL program and save the settings to a file, type:


```
CMOSUTIL \path\file_name.CMS /create
```

 Give the file a unique name that you can identify later. For example, NO35DISK.CMS could be the name of a file that has settings that restrict a client workstation's access to diskette drives.
 - b. Copy this file to the corresponding BIOS directory on your server which is named:


```
C:\LCCM_install_dir\BIOS\Flash_BIOS_Name
```

 where the *Flash_BIOS_Name* directory is the name of the BIOS level on your donor workstation (unless this was changed by the system administrator during the Read BIOS Flash Diskette process).

3. If you want to create another CMOS image that uses different settings, go back to step 1 and repeat the procedure, saving the results to a different file name.

To assign this CMOS image to client workstations, see “Assigning Clients a CMOS Settings Image” on page 79.

Managing Software Profiles

Objective: To create, view, edit or delete software profiles.

When managing software profiles, you use the Software Profile Details notebook for the specific software profile.

For specific information on the components of the Software Profile Details notebook, see “Software Profile Details Notebook” on page 45.

Creating a Software Profile

You can create a profile by entering new information, or you can create a copy from a similar, existing profile. The latter method saves time because you do not have to reenter duplicate information.

To create a new software profile:

1. Select **Profile** from the menu bar of the Installation/Maintenance window.
2. Select **Create new**. A new Software Profile Details notebook appears.
3. In the blank fields of the different pages, type the information for the new software profile. Make certain that you type a Profile Name on the Details page, and select the correct type of RPL. For more information, see “Software Profile Details Notebook” on page 45.
4. Click on **OK** to return to the Installation/Maintenance window.

To create a software profile from a copy of an existing profile:

1. Select the software profile you want to copy within the Installation/Maintenance window.
2. Select **Profile** from the menu bar of the Installation/Maintenance window.
3. Select **Create copy**. When the copy is created, all fields are transferred except the profile name.
4. Type a unique Profile Name in the Details page.

If necessary, edit any other fields that are different from the original software profile.

5. Click on **OK** to return to the Installation/Maintenance window.

Viewing or Editing an Existing Software Profile

To view or edit an existing software profile:

1. Double-click on the software profile within the Installation/Maintenance window, or highlight the software profile, select **Profile** from the menu bar, and then select **Configure**. The Software Profile Details notebook appears.
2. Do one of the following:
 - To view the description of the software profile, select the **Details** page. Click on other pages to view different fields.
 - To edit the software profile, modify the appropriate fields of the various pages of the notebook. For more information, see “Software Profile Details Notebook” on page 45.

3. Click on the **OK** button to return to the Installation/Maintenance window.

Deleting a Software Profile

To delete an existing software profile:

1. Select the software profile within the Installation/Maintenance window.
2. Select **Profile** from the menu bar.
3. Select **Delete**.
4. Select **Yes** in the message box that displays.

All clients assigned to the deleted software profile are placed in the Unassigned Clients list of the Installation/Maintenance window.

5. Click on the **Process** button to save and process the changes.

Managing Clients

Objective: To manage client settings through the LANClient Control Manager interface.

The procedures in this section are specific to the interface (screens) of LANClient Control Manager. For most of the procedures, you must access the Individual Client Details notebook. For specific information on the components of the Individual Client Details notebook, see “Individual Client Details Notebook” on page 31.

For most of the procedures in this section, you must select (click on) clients from the listings within the Installation/Maintenance window. By selecting a single client, you can make changes for that client only. By selecting multiple clients, you can make changes for all clients selected. When making changes for multiple clients, only some fields are available for editing. Fields not available for editing are grayed out. For information on selecting multiple clients within the Installation/Maintenance window, see “Selecting Clients” on page 21.

Assigning Clients to Software Profiles

Important: In order for the changes to take place, you must always click on the Process button after assigning software profiles to clients.

To assign clients to software profiles:

1. Select the software profile within the Installation/Maintenance window.
2. Select the clients to be assigned in the Unassigned Clients box.
3. Click on the **Assign** button. The clients appear listed below the software profile you selected.

Note: If the client requires additional personalization at the individual client level, open the Individual Client Details notebook for each newly-assigned client and fill in the values for each name listed on the Parameters page. For details, see “Individual Client Details - Parameters Page” on page 40.

4. Click on the **Process** button to save and process the changes.

You can bypass using the **Assign** button by using the drag and drop method. To do this, select the clients you want to assign, and then drag and drop them onto the desired software profile. Next, click on the **Process** button to save and process the changes.

Also, you can reassign clients to new software profiles within the Assigned Clients and Profiles box. To do this, select the clients within the Assigned Clients and Profiles box. Next, select a new software profile, and then click on the **Assign** button. (You can also drag and drop the clients onto the new software profile.)

After the changes are processed, the new software profile takes effect the next time the client workstation restarts (or as soon as the change is applied if the client is already waiting to start up). If the software profile is a Hybrid RPL profile, the software is downloaded onto the hard disk drive of the client and then the client restarts. Any restarts after that are made from the hard disk until the software profile is changed.

Unassigning Clients from Software Profiles

Unassigning a client from a software profile changes an assigned client into an unassigned client. You might want to unassign a client in order to immediately reassign it to a different software profile. After you unassign a client, the client appears in the Unassigned Clients box.

Note: If a client is left in the Unassigned Clients box after the changes are processed (clicking on the Process button), the client will not be able to start up.

To unassign one or more clients from a software profile:

1. Select a client or multiple clients within the Profiles and Assigned Clients box.
2. Click on the **Deassign** button.
3. Click on the **Process** button to save and process the changes.

Temporarily Disabling a Client

Note: A disabled client appears gray within the listings of the Installation/Maintenance window.

To temporarily disable a client from starting:

1. Select a client or multiple clients within the Profiles and Assigned Clients box.
2. Access the Individual Client Details notebook by doing one of the following:
 - Double-click on one of the selected clients.
 - Select **Client** from the menu bar, and then select **Configure**.
3. Select the **Details** page.
4. Click on the **Client Disabled** check box.
5. Click on **OK** to return to the Installation/Maintenance window.
6. Click on the **Process** button to save and process the changes.

Deleting a Client

To delete one or more clients:

1. Select a client or multiple clients within the Profiles and Assigned Clients box.
2. Select **Client** from the menu bar.
3. Select **Delete**.
4. Click on the **Process** button to save and process the changes.

Showing Client Mismatches

The function to *show mismatches* is available only to clients that have been assigned software profiles. Clients that have configuration problems (mismatches) appear red within the Installation/Maintenance window. Any mismatch problems might prevent the client from functioning correctly.

To show configuration mismatches:

1. Select a client shown in red within the Profiles and Assigned Clients box.
2. Select **Client**.

3. Select **Show Mismatch**.

Details of the mismatch appear as part of the tree underneath the selected client. This function works on individual clients only; you cannot show mismatches for a group of clients.

Selecting How Clients are Displayed

You can customize how clients are displayed within the boxes of the Installation/Maintenance window. You can list them by one of the following values:

- Name
- Network Address
- Serial Number
- Contact
- Location
- Comment

To select how clients are displayed:

1. Select **Options** from the menu bar of the Installation/Maintenance window.
2. Select **Display Clients By**.
3. Select a value from the list that appears.

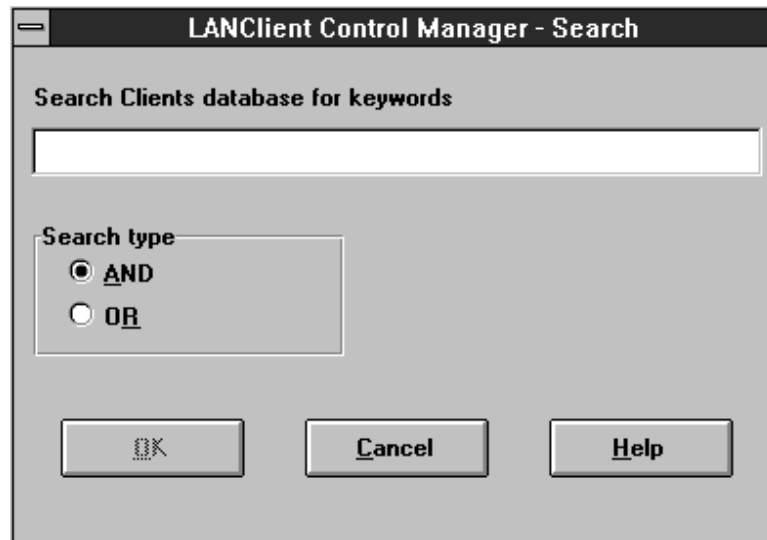
Note: The default attribute for displaying clients is Name. Of the options provided by LANClient Control Manager, only Name and Network Address are guaranteed to be unique. Location or Contact might be more useful, depending on your organization.

Searching for Specific Clients

After scanning for new clients, you can narrow the list of clients by creating a database search. You can search for any alphanumeric values (text and numbers) stored in LANClient Control Manager that might help you identify individual clients or groups of clients. For example, you can locate clients that have a specific BIOS level or video chip set. You can search for field values stored in any of the pages of the Individual Client Details notebook (or combinations of these values). (For more information about these fields, see “Individual Client Details Notebook” on page 31.)

To perform a search on existing clients:

1. Select **Tools** from the menu bar in the Installation/Maintenance window.
2. Select **Search for Client**. The following window appears.



3. Enter the keywords you want to search on; you can also enter partial words. Leave a space between each word.
4. Select one of the following search types:
 - **AND** - finds occurrences that match all the keywords typed in.
 - **OR** - finds occurrences that match any of the keywords typed in.
5. Select **OK**. Search results are displayed in the Clients Database Search window. You can then select, edit, copy, or delete individual clients or groups of clients from this window.

Modifying an Existing Client

To modify an existing client:

1. Select a client in the Installation/Maintenance window.
2. Access the Individual Client Details notebook by doing one of the following:
 - Double-click on the selected client.
 - Select **Client**, then select **Configure**.
3. Edit the desired fields of the different pages. For more details, see “Individual Client Details Notebook” on page 31.
4. Click on **OK** to return to the Installation/Maintenance window.
5. Click on the **Process** button to save and process the changes.

Forcing an Image Reload at Next Startup

This procedure forces an image reload onto selected clients at the next client startup. You might want to use this procedure if the software on the client has been damaged. Rather than try to diagnose the problem and replace the damaged files individually, you can save time by reloading the entire software profile.

To set a forced image reload at next startup:

1. Select a client or group of clients within the Installation/Maintenance window.
2. Access the Individual Client Details notebook by doing one of the following:

- Double-click on a selected client.
 - Select **Client** from the menu bar, then select **Configure**.
3. After the Individual Client Details notebook appears, select the **RPL Details** page.
 4. Click on the button for **Mark Client for reload of image on next boot**.
 5. Click on **OK** to return to the Installation/Maintenance window.
 6. Click on the **Process** button to save and process the changes.

Changing or Deleting a BIOS Administrator Password

You can change or delete a BIOS administrator password that has already been assigned to one or more client workstations

To change or delete a BIOS administrator password:

1. Select the clients you want to update in the Installation/Maintenance window.
2. Access the Individual Client Details notebook by doing one of the following:
 - Double-click on a selected client.
 - Select **Client** from the menu bar, then select **Configure**.
3. Select the **Maintenance** page.
4. Click on the **Update BIOS Admin Password** check box.
5. In the field to the right of the **Update BIOS Admin Password** check box, do one of the following:
 - To delete an existing BIOS administrator password, erase the current password and leave the field blank.
 - To change an existing BIOS administrator password, erase the current password and type in a new one.
6. Click on the **OK** button to return to the Installation/Maintenance window.
7. Click on the **Process** button to save and process the changes.

Updating the BIOS Level

If you need to create an image before updating the BIOS level, see “Creating a BIOS Update Image” on page 68.

To assign the BIOS level to clients:

1. Select the clients you want to update in the Installation/Maintenance window.
2. Access the Individual Client Details notebook by doing one of the following:
 - Double-click on one of the selected clients.
 - Select **Client** from the menu bar, then select **Configure**.
3. Select the **Maintenance** page.
4. In the **BIOS Level** box, select the level for the BIOS upgrade.
5. In the **BIOS Language** box, select the language for the BIOS upgrade.
6. Click on the **Update BIOS** check box.

7. Select the **Scheduler** page of the Individual Client Details notebook and verify the scheduler information. For details, see “Individual Client Details - Scheduler Page” on page 42.
8. Click on **OK** to return to the Installation/Maintenance window.
9. Click on the **Process** button to save and process the changes.
10. The Progress and Errors window displays. BIOS updates are not made until the client workstations are switched off and restarted, or the client's scheduled update time is reached.

Note: If the BIOS update fails, an error code appears in the Progress and Errors window. The meanings of the error codes vary depending on the BIOS level. To decipher the error codes:

- a. Insert the appropriate BIOS flash diskette into the diskette drive.
- b. To see a list of error codes and their meanings, at a command prompt, type:

```
A:\CMOSUTIL /?
```

Assigning Clients a CMOS Settings Image

Note: If you change the client's CMOS data, you must use a CMOS level that is compatible with the client's BIOS level.

Before assigning a CMOS settings image with LANClient Control Manager, you must create the image and put it on the server. For more details, see “Creating a CMOS Settings Image” on page 70.

To assign clients to a CMOS settings image:

1. Select the clients you want to update in the Installation/Maintenance window.
2. Access the Individual Client Details notebook by doing one of the following:
 - Double-click on one of the selected clients.
 - Select **Client** from the menu bar, then select **Configure**.
3. Select the **Maintenance** page.
4. Use the **Browse** button to select the correct CMOS (.CMS) file for the clients, or type in the full path and file name directly into the field provided.
5. Check the **Update CMOS with file** check box.
6. Select the **Scheduler** page of the Individual Client Details notebook and verify the scheduler information. For more details, see “Individual Client Details - Scheduler Page” on page 42.
7. Click on **OK** to return to the Installation/Maintenance window.
8. Click on the **Process** button to process these changes.

The Progress and Errors window displays. CMOS updates will not be made until the client workstations are switched off and restarted, or the client's scheduled update time is reached.

Note: If the CMOS settings update fails, an error code appears in the Progress and Errors window. The meanings of the error codes vary depending on the BIOS level. To decipher the error codes:

- a. Insert the appropriate BIOS flash diskette into the diskette drive.
- b. To see a list of error codes and their meanings, at a command prompt, type:
A:\CMOSUTIL /?

Assigning Clients a Maintenance File

To assign clients to a maintenance image:

1. Select the clients you want to update in the Installation/Maintenance window.
2. Access the Individual Client Details notebook by doing one of the following:
 - Double-click on one of the selected clients.
 - Select **Client** from the menu bar, then select **Configure**.
3. Select the **Maintenance** page.
4. Use the **Browse** button to select the correct maintenance file, or type in the full path and file name directly into the field provided (beside the Run Maintenance file check box).
5. Check the **Run Maintenance file** check box.
6. Select the **Scheduler** page of the Individual Client Details notebook and verify the scheduler information. For details, see “Individual Client Details - Scheduler Page” on page 42.
7. Click on **OK** to return to the Installation/Maintenance window.
8. Click on the **Process** button to process these changes.

Managing Settings at the Client Workstation

Objective: To manage workstation settings by changing information in the Configuration/Setup Utility program of each client workstation.

To perform the procedures in this section, you must access the Configuration/Setup Utility program of the client workstation. The settings you choose in these procedures directly affect how LANClient Control Manager performs.

Allowing Local Hard Disk Startup

If you have a centralized client-configuration and maintenance area from which you send preconfigured workstations out to different areas of your organization, you can run LANClient Control Manager from a single server to configure your clients, set them to start up from the hard disk, and disconnect them from the LAN. LANClient Control Manager stores the client-configuration details so that if the client workstation comes back in for maintenance or reconfiguration, the details are readily available.

To allow local hard disk startup for clients:

1. Install the new client workstation. For more information, see “Installing New Client Workstations” on page 56.
2. Scan the new client workstation into the LANClient Control Manager database. For more information, see “Using the Scan Feature” on page 58.
3. Assign the client to a Hybrid RPL profile and process. For more information, see “Assigning Clients to Software Profiles” on page 74.
4. Go to the client workstation, and shut it down.
5. Reconfigure the startup sequence:
 - a. Disconnect the network cable from the client workstation and then restart it.
 - b. Restart the client workstation and enter the Configuration/Setup utility program. (On many IBM workstations, you must press F1 to enter the program. If an administrator password has been set, type it in.) Within the Configuration/Setup utility program, change the startup sequence in one of the following ways:
 - Select **hard disk drive** as the first startup device.
 - If you want to maintain the ability to start the workstation from a diskette, select **diskette drive** as the first startup device and **hard disk drive** as the second startup device.
 - c. Save the settings and exit the program.

If you need to reload, or perform any other maintenance actions from LANClient Control Manager, set the startup sequence so that **network** is the first startup device. This allows the client to perform an RPL at next startup.

Using Dual Startup Sequences

Some IBM workstations allow you to specify two startup sequences within the Configuration/Setup utility program the client workstation. (Consult your IBM workstation user manual for specific details.)

When using LCCM, the first startup device of the first startup sequence must be set to *network*. When the user switches on the client workstation, the Hybrid RPL process connects and "shakes hands" with the client before allowing the client to continue starting up from its hard disk. This is a very brief process that allows you to maintain control of the client workstation at all times. If you have scheduled image downloads or maintenance procedures to run *as soon as possible*, the client is processed at this time (see the Scheduler page for either the Defaults notebook or the Individual Client Details notebook).

The second startup sequence is used to specify how the workstation starts up when requested to do so by LANClient Control Manager. On some IBM workstations this is called the Automatic Power-On Startup sequence. You must enable Wake on LAN within the BIOS settings of the client workstation and also within the LANClient Control Manager interface before the second startup sequence will operate. For details about enabling Wake on LAN within LANClient Control Manager, see "Defaults Notebook - Processing Page" on page 26.

Each startup sequence has four possible startup devices. If the first startup device fails, the workstation automatically attempts to start up from the second, third, and then fourth device. The startup devices are:

- Network
- Hard Disk Drive
- Diskette Drive
- CD Drive

Note: If you set the first startup device to network but do not set the second, third, or fourth device, the client will not function when disconnected from the LAN. The command for starting client workstations remotely is specified in the Scheduler page of the Individual Client Details notebook. Use this function to schedule clients to be switched on automatically and processed at any time during a seven-day period. For more information, see "Individual Client Details - Scheduler Page" on page 42.

Changing the BIOS Administrator Password for Service

The client workstation BIOS settings can be password protected to help prevent unauthorized users from changing settings such as the startup sequence. In most IBM workstations, the BIOS settings are normally accessed by pressing F1 while the workstation is starting up.

The BIOS administrator password can be set or disabled in the Maintenance page of the Individual Client Details notebook by setting the **BIOS Password** field. If this field is left blank, the password is disabled.

The BIOS program on a client is to be accessed by an authorized user only. If you follow the steps below, it is not necessary to tell anyone else the password or to have the administrator present at the client workstation to make changes.

1. Ensure that a trained or authorized user is at the client workstation, ready to make the changes.
2. At the server, disable the BIOS password for the client.
3. At the client, restart the workstation so that the change takes effect.
4. At the server, enable the BIOS password.

5. At the client:

- a. Restart the workstation again, and press **F1** to access the BIOS settings. Make the required BIOS changes.
- b. Exit from the BIOS settings utility. The client will restart and the BIOS password will be enabled.

Note: Ensure that only authorized users are given access to BIOS settings. If the startup sequence of the client is changed in the BIOS settings so that *network* is not the first option, all control of the client from LANClient Control Manager is lost. If the BIOS password is changed at the client, you cannot reestablish Hybrid RPL control.

The BIOS administrator password *code* is based on the positions of the keys, not the characters typed in. If any of your clients use a different language keyboard or a keyboard layout different from the keyboard you use to interact with LANClient Control Manager, the BIOS administrator password might not be recognized when typed in from the client keyboard. Ensure that you only use characters that occur in the same position on all keyboards used. If the field is left blank, the password is disabled.

Installing Network Adapter Device Drivers

Objective: To install device drivers for new network adapters in client workstations that will be managed by LANClient Control Manager.

In order to complete this procedure, you must access the NETWORK.LST file provided by LANClient Control Manager. This file is located in the following directory:

LCCM_install_dir\NETWORK.LST

Note: For detailed procedures on enabling RPL to function with various device drivers, refer to the World Wide Web at <http://www.pc.ibm.com/us/desktop/lccm/index.html>. The information on the World Wide Web will be updated for all supported network adapters.

Important: You must perform steps 8 and 9 on page 85 (editing the NETWORK.LST file) for all adapters you are using on your network, even if you are installing network adapters that are supported by Windows NT Server. The only exceptions to this are:

- IBM Etherjet Adapter
- Crystal LAN Ethernet Adapter
- IBM Auto ISA 16/4 Token Ring Adapter
- IBM Auto Wake Token Ring Adapter
- IBM PCI Token Ring Adapter
- Intel 10/100 Adapter

If you are using an adapter which is not supported by Windows NT Server, you must carry out all of the following steps. Consult your Windows NT Server documentation for a list of supported device drivers.

To install the device drivers for unsupported network adapters:

1. Install the network adapter into the workstation. Consult your workstation's documentation for instructions on installing adapters.
2. Insert the network adapter's device-driver diskette into the diskette drive.
3. Locate the correct DOS NDIS device driver to be used.

Note: IBM cannot supply you with specific information for finding the appropriate device driver because adapter manufacturers use different methods for storing their device drivers on diskette. You might find the device driver name supplied as a parameter in the PROTOCOL.INI, PROTOCOL.SMP or *.SMP files on the diskette. The device driver is normally stored in a \DOS sub-directory. Consult the diskette's README or SETUP text files (if supplied) for information that will help you locate the correct file.

4. Copy the device driver from the diskette to:

remote_boot_services_directory\BBLOCK\NDIS

5. Make a new directory named:

remote_boot_services_directory\BBLOCK\NETBEUI\new_adapter_name

6. Copy the files DOSBB.CNF and PROTOCOL.INI from:

remote_boot_services_directory\BBLOCK\NETBEUI\IBMTOK

to:

remote_boot_services_directory\BBLOCK\NETBEUI\new_adapter_name

Note: These files are used as templates for your new adapter.

7. Edit the DOSBB.CNF and PROTOCOL.INI in your *new_adapter_name* directory. Substitute the correct device driver name in the DOSBB.CNF file and supply the correct driver information in the PROTOCOL.INI file. You must consult the README file supplied with the adapter driver and your Windows NT documentation for details about the settings used in PROTOCOL.INI.

8. Load the file NETWORK.LST into an editor. This file is located in:

LCCM_install_dir\NETWORK.LST

9. Edit the NETWORK.LST file by doing one of the following:

- If you are using new adapters, add one line for each new adapter.
- If you are updating an existing adapter, check that the entry is correct.

Important: Edit the NETWORK.LST file with care. Reading the file is dependent on space and the semi-colon positions within each line. The line must end with a semi-colon. All invalid lines are ignored.

The format of the line is:

DESCRIPTION;X;Y;BOOT_BLOCK;OS2_BOOT_REC;DEVICE_DRIVER;PNP_PCI_ID;SCAN_ON_OFF;CONFIG_MEM;

where:

DESCRIPTION is the description in the adapter list of LANclient Control Manager. All characters from the start of the line until the semi-colon (;) are used as the description.

X (field 2) is a unique and sequential number in the list.

Y (field 3) is reserved by the program. You MUST set this field to the same value as field 2.

BOOT_BLOCK is the directory of the boot block for the adapter that you created in step 5 on page 84. This directory holds the name created under the \BBLOCK\NETBEU directory that stores DOSBB.CNF and PROTOCOL.INI. Refer to the appropriate documentation on RPL for information on these fields.

OS2_BOOT_REC is OS2. Although this field is not used, it must still exist in the line. The value must be OS2.

DEVICE_DRIVER is the path and filename of the NDIS DOS driver that is installed for the adapter. This is relative to the NT (Remoteboot) RPL directory. Typically, this is in the BBLOCK\NDIS directory. Do not type a backslash character (\) at the beginning of this field.

PNP_PCI_ID is the PNP (plug and play) or PCI identifier for the adapter.
- PNP ID = First 7 digits of the PNP number
- PCI ID = First 8 digits of the PCI number

SCAN_ON_OFF is the first six digits of the MAC address equal to 0 (off) or 1 (on).
IMPORTANT: see the following note for more details.

CONFIG_MEM are the settings used to call emm386.exe. This field contains three flags.
- Flag 1, can be X or N.
- Flag 2, can be X or N.
- Flag 3, can be 1,2,3 or 4.

Flag 1 is used by the normal download process.

X indicates to use the CONFIGx.sys file in the BINFILES\IBMDOS7 directory. This has emm386.exe present.

N indicates to use the CONFIGn.sys file in the BINFILES\IBMDOS7 directory. This has no emm386.exe line.

Flag 2 is used during the FLASH process.

Flag 3 should be set to 4

Note: If the first six digits of the MAC addresses of two or more adapters are identical, it might not be possible for Windows NT to detect what type of adapter is attempting the RPL. When a new client is scanned, the only adapter information available to the network software is the 12-digit MAC address, where the first six digits of the MAC address identify the adapter type. Currently, different adapter manufacturers might assign identical MAC address types to different adapters.

If you are using a limited number of adapter types on your LAN, you might not encounter a problem, but if an identification conflict does occur, you must switch off conflicting adapter types during the scan process and only allow

one (conflicting) type during each scan. This limitation only affects the scan process. Up to five addresses can be specified with an =0 (off) or =1 (on).

The following is an example of the lines listed within the NETWORK.LST file. The following is not a complete NETWORK.LST.

```
IBM Token Ring 16/4;2;2;LCIBMTOK;OS2;BBLOCK\NDIS\IBMTOK.DOS;244d000;08005A=1,0004ac=1;XN4;  
IBM EtherJet ISA;3;3;LCCRYST;OS2;BBLOCK\NDIS\ENDS2ISA.DOS;244d101;002035=0;XN2;  
IBM Token Ring WOL16/4;5;5;LCIBMWOL;OS2;BBLOCK\NDIS\IBMTOKW.DOS;244d107;0004acf4=1;XN4;  
IBM Token Ring 16/4 PCI;6;6;LCIBMTRP;OS2;BBLOCK\NDIS\IBMTRP.DOS;1014003e;0004ac=0,000629=1;NN4;  
Intel 10/100 PCI Ethernet;7;7;LCINTEL;OS2;BBLOCK\NDIS\E100B.DOS;80861229;00aa00=1,00a0c9=1;NN4;
```

Chapter 5. Hybrid RPL Training Exercises

Introduction	90
DOS/Windows Image	91
Windows 95 Image	96
Windows NT Workstation Image	103
Installing Windows NT Workstation Without Applications	103
Installing Windows NT Workstation With Applications	111
Editing the Windows NT Workstation Answer File	115

Introduction

The training exercises are provided to help you become more familiar with the Hybrid RPL process. Each exercise gives a specific example of how to create image batch files and how to use them with LANClient Control Manager.

Important: The terms and conditions of the IBM International Program License Agreement for LANClient Control Manager do not grant any license to install, copy, or use any application software or operating system software mentioned in this guide that is not shipped as part of LANClient Control Manager. Always ensure that you have obtained suitable licenses for any software you intend to use with LANClient Control Manager. When using the exercises in this chapter, keep the following information in mind:

- The environment automatically created for Hybrid RPL is created on the client workstation during the download process. For more information, see “Environment for Hybrid RPL” on page 6.

- XCOPY Considerations

The way LANClient Control Manager uses software profiles allows you a great deal of flexibility. If you have your own preferred methods of copying programs and data to clients, you can probably adapt this method to LANClient Control Manager. For example, the exercises in this section use XCOPY for copying files (with the exception of the Windows 95 image exercise for Windows NT Server which uses PKZIP). You can also use another archive program, like PKZIP, to transport the files. For more information, see “Using Alternative Methods for Transporting Images” on page 64.

- Example Files

Example files for all exercises are provided in Chapter 6, “Example Files” on page 125.

- Utility Programs

The utility programs you must use to perform the exercises in this chapter are provided by LANClient Control Manager. Some of the utilities might not be necessary for the task you are trying to perform. For more information on the utility programs, see Chapter 7, “Utilities Provided by LANClient Control Manager” on page 131. You can find the utilities in the *LCCM_install_dir*\CLNTFILE directory.

DOS/Windows Image

This exercise remotely installs a DOS/Windows image on a client workstation. The image can also contain other applications, but for the purposes of this exercise, DOS and Windows are the only software specifically mentioned.

Note: As part of this exercise, you create a text file called MOCKINI.TXT. This file is modified during the Hybrid RPL download process using the parameter-passing feature provided by LANClient Control Manager. The only purpose of this text file is to give you hands-on experience using parameter-passing techniques. In an actual work situation, you can use these same parameter-passing techniques to modify .INI files or any other text-based files that require client-specific information, such as domain names, gateway addresses, user ID's, IP addresses, and so on.

Objective: This exercise:

- Sets up a client workstation
- Adds the client workstation to the LANClient Control Manager database
- Creates a DOS/Windows image
- Transports the DOS/Windows image to the server
- Assigns the client workstation to the software profile
- Downloads the DOS/Windows image to the client workstation

Before you begin, you must have the following:

- A server attached to the LAN. The server must be functioning and have LANClient Control Manager already installed.
- The LANClient Control Manager Defaults notebook must be set up with the proper default information. For details, see “Setting Specific Defaults Prior to Scanning” on page 57.
- A donor workstation that is compatible with the new client workstation you will be managing.
- A donor boot startup image as described in “Using a Donor Workstation Startup Image” on page 63. You will assign this image to the donor workstation in step 8 on page 92.
- Three licenses for DOS and Windows.
- A client workstation. This workstation must have a network adapter and meet the minimum hardware requirements to run DOS and Windows.

To install a DOS/Windows image:

1. Install two client workstations and attach them to the LAN. (For details, see “Installing New Client Workstations” on page 56.) One client workstation will become the donor workstation. The other will receive the image and will be referred to as the client workstation throughout the remainder of this exercise.
2. Start LANClient Control Manager and scan for the new donor and client workstations. (See “Using the Scan Feature” on page 58 for details.)
3. Install DOS and Windows on the donor workstation. You can also install additional applications at this time.
4. Create the directory C:\LANCLI on the donor workstation.

5. Copy the following utility programs to the C:\LANCLI directory:

- DISKDOS.EXE
- LCATTRIB.EXE
- DEDITD.EXE

You can find the utility programs in the *LCCM_install_dir\CLNTFILE* directory.

6. Create a text file for modification. This is the file that will be modified using the parameter-passing techniques.

a. Create the text file with the following contents only:

```
REM Sample File for LCCM Exercise
```

```
[Common data]
```

```
OrgName = dummy_Org
```

```
[Individual data]
```

```
FullName = dummy_Username
```

```
JoinDomain = dummy_Domain
```

```
NetworkAddress = dummy_Address
```

Note: The format of this file simulates an .INI file. Normally, you would edit an existing .INI file (or other text-based file) and replace existing values with "dummy" names. The "dummy" names will be referenced in the final-image batch file you create later in this exercise. When the image is downloaded, the customization batch file will replace the dummy names with values that are common to the organization and unique to the individual client.

b. Save the file on the donor workstation as:

```
C:\LANCLI\MOCKINI.TXT
```

7. At the donor workstation, create and save a backup batch file.

a. Use a text editor to create a backup batch file that has the following content:

```
D:  
CD \  
\LANCLI\DISKDOS /F=D:\LANCLI\DOS7.BB /D=D /R=R  
\LANCLI\LCATTRIB D:\ /A /S  
C:  
MD \LCCM\DOS70  
CD \LCCM\DOS70  
XCOPY D:\*.* C:*.* /S /E  
D:  
CD \  
\LANCLI\LCATTRIB D:\ /R /S
```

The backup batch file will be used to prepare the image and transport it to the server. For an explanation of the commands used in the backup batch file, see "Backup Batch File - DOS/Windows Image" on page 126.

b. Save the backup batch file on the donor workstation as:

```
D:\LANCLI\BACKUP.BAT
```

8. Assign the donor workstation to the donor boot startup image. Next, connect the donor workstation to the network as described in the procedure "Using a Donor Workstation Startup Image" on page 63.

9. Change the directory to the local-disk root directory (drive D).
10. Run the backup batch file by changing to the LANCLI directory and typing BACKUP.BAT. This command transports the image from the donor workstation to the server.
11. At the administrator console, stop the donor boot process within the Installation/Maintenance window, and then create a preload-image batch file.

Note: Creating a preload-image batch file is an optional step for LANClient Control Manager. A preload-image batch file is needed only if you want to partition the hard disk of the client workstation before installing the image.

- a. Use a text editor to create a preload-image batch file that has the following content:

```
C:\LCCM\LCBTRDEL 0 /S
C:\LCCM\INTER.EXE FDISK < C:\LCCM\LC5050FD.DAT
```

For an explanation of the commands used in the preload-image batch file, see “Preload-Image Batch File” on page 128.

Important: If the size of the client workstation hard disk is 4 GB or greater, you cannot use LC5050FD.DAT. LC5050FD.DAT creates a primary DOS partition that is 50% of the hard disk space, and this partition cannot exceed 2 GB. For information on creating your own response files, see “Response Files for the FDISK Command” on page 134.

- b. Save the preload-image batch file as:

```
\LCCM_install_dir\CLNTFILE\FAT_PR.LCP
```

Note: This file can have any name you want, but the extension must be .LCP. The name FAT_PR.LCP will be used throughout the remainder of this exercise.

12. At the administrator console, create a final-image batch file.

Note: The final-image batch file runs on the client from a DOS network start up when the Hybrid RPL download is processed.

- a. Use a text editor to create a final-image batch file that has the following content:

```
FORMAT D: < C:\LCCM\FORMAT.DAT
XCOPY C:\LCCM\DOS70\IBMBIO.COM D:\
XCOPY C:\LCCM\DOS70\IBMDOS.COM D:\
XCOPY C:\LCCM\DOS70\*. * D:\ /S /E /V
D:
CD \
\LANCLI\DISKDOS /F=D:\LANCLI\DOS7.BB /R=W /D=D
\LANCLI\LCATTRIB D:\ /R /S
D:
CD \
\LANCLI\DEDITD /R /N0 D:\LANCLI\MOCKINI.TXT dummy_Org %ORNAME%
\LANCLI\DEDITD /R /N0 D:\LANCLI\MOCKINI.TXT dummy_Username %USERNAME%
\LANCLI\DEDITD /R /N0 D:\LANCLI\MOCKINI.TXT dummy_Domain %DOMAIN%
\LANCLI\DEDITD /R /N0 D:\LANCLI\MOCKINI.TXT dummy_Address %ADDRESS%
```

For an explanation of the commands used in the final-image batch file, see “Final-Image Batch File - DOS/Windows Image” on page 129.

- b. Save the final-image batch file on the server as:

`\LCCM_install_dir\CLNTFILE\DOS70.LCI`

Note: This file can have any name you want, but the extension must be .LCI. The name DOS70.LCI will be used throughout the remainder of this exercise.

13. Create a Software Profile Details notebook for your DOS/Windows image.

a. At the Installation/Maintenance window of LANClient Control Manager, select **Profile** from the menu bar, then select **Create New**. This opens the Software Profile Details notebook.

b. On the Details page:

- Type `DOS_WIN_Test` in the Profile Name field.

Note: You can name the profile any name you want. The profile name `DOS_WIN_Test` will be used throughout the remainder of this exercise.

- Click on the Hybrid RPL radio button.

- In the Description field, type a description such as:

Exercise profile
DOS 7.0 with Windows 3.X

c. On the Minimum HW page:

- Select the appropriate adapter for the client workstation from the drop-down menu of the Network Adapter field.
- Select **Any Video - Don't Care** from the drop-down menu of the Video Chipset field.
- Type **0** in the RAM field.
- Type **0** in the Hard Disk field.

d. On the RPL Details page, use the browse button to find:

- In the Preload Image File Name field:

`FAT_PR.LCP`

- In the Final Image File Name field:

`DOS70.LCI`

Also, ensure that the Enable Preload box is checked.

e. On the Parameters page, set up the following parameter names:

Names	Values
=====	=====
ORGNAME	Type in your company name

Note: The values on this page are common for all clients using this profile.

f. On the Client Parameters page, set up the following parameter names:

Names	Values
=====	=====
USERNAME	- Leave Blank -
DOMAIN	- Leave Blank -

Note: The names used on this page are passed to the Parameters page of the Individual Client Details notebook for each client assigned to this profile. Although you use %CADDRESS in your final-image batch file, you do not need to specify it on this page. %CADDRESS is a special value that picks up the contents of the Address field from the Details page of the Individual Client Details notebook. For additional information about other special parameters, see “Parameter Exceptions” on page 67.

g. Select **OK** to save and close the notebook.

14. Assign the client to the new software profile, but **DO NOT PROCESS THE CHANGES UNTIL INSTRUCTED TO DO SO IN A LATER STEP OF THIS EXERCISE**. (For instructions on assigning clients, see “Assigning Clients to Software Profiles” on page 74.)

15. Open the Individual Client Details notebook for the new client assigned to this image. (See “Modifying an Existing Client” on page 77 for details.)

a. On the Parameters page, set up the values for the following names:

Names	Values
=====	=====
USERNAME	Type in the end user's name
DOMAIN	Type in the domain name (or some text to represent a domain name).

b. Select **OK** to save and close the notebook.

16. Click on the Process button in the Installation/Maintenance window to begin processing.

17. Turn on the client workstation.

If you used a preload-image batch file, the client hard disk is partitioned. Next, the hard disk is formatted, and the image is downloaded to the client hard disk and is customized for that specific client. The next time the client is started, it starts DOS/Windows from its own hard disk.

If you open the MOCKINI.TXT file at the client workstation, you will see that the dummy parameters have been replaced with the parameters defined in the LANClient Control Manager notebooks.

Additional clients can be assigned to the same profile. However, before processing the additional assignments, edit the Individual Client Details notebook for each new client and modify the Parameters page as described in this exercise.

Windows 95 Image

This exercise remotely installs a Windows 95 image on a client workstation.

Objective: This exercise:

- Sets up a client workstation and donor workstation
- Adds the client workstation to the LANClient Control Manager database
- Creates a Windows 95 donor image on the donor workstation
- Modifies the Windows 95 Registry to accept personalization values
- Creates a software profile for the Windows 95 image
- Transports a Windows 95 image to the server
- Assigns the client workstation to the software profile
- Modifies the Individual Client Details notebook for personalized parameter values
- Downloads the Windows 95 image to the client workstation
- Modifies the Windows 95 Registry to match parameters assigned by the Individual Client Details notebook
- Restarts the client workstation to startup Windows 95 from the client hard disk

Before you begin, you must have the following:

- A server attached to the LAN. The server must be configured with the correct server software, and the server or another client workstation must have LANClient Control Manager already installed.
- The LANClient Control Manager Defaults notebook must be set up with the proper default information. For details, see “Setting Specific Defaults Prior to Scanning” on page 57.
- The Windows 95 installation CD.
- Access to Windows 95 documentation, specifically information about the Registry.
- A client workstation. This workstation must have a network adapter and meet the minimum hardware requirements to run Windows 95.
- A donor workstation that is compatible with the new client workstation you will be managing.
- A donor boot startup image as described in “Using a Donor Workstation Startup Image” on page 63. You will assign this image to the donor workstation in step 8 on page 98.
- The appropriate number of licenses for Windows 95.
- A licensed copy of PKZIP and PKUNZIP installed in the *LCCM_install_dir\CLNTFILE* directory.

To install a Windows 95 image:

1. Install two client workstations and attach them to the LAN. (For details, see “Installing New Client Workstations” on page 56.)

One client workstation will become the donor workstation. The other will receive the Windows 95 image and will be referred to as the client workstation throughout the remainder of this exercise.

2. Start LANClient Control Manager and scan for the new client workstations. (See “Using the Scan Feature” on page 58.)
3. Install Windows 95 on the donor workstation using the Windows 95 installation CD.

Keep track of all questions asked during the installation that deal with the user name, workgroup, product ID, and so on. The attributes, related to these questions, will be modified later in this exercise using the parameter-passing method.

4. On the donor workstation create a directory named LANCLI on drive C.
5. Copy the following utilities (supplied with LANClient Control Manager) to the C:\LANCLI directory:
 - DISKDOS.EXE
 - LCATTRIB.EXE
 - DEDITD.EXE
 - DOSLFNBK.EXE
6. Create a backup of the Windows 95 Registry.

Note: This file is used later in this exercise to restore the donor workstation back to a working client workstation.

- a. In the Windows 95 interface, click on **Start**.
 - b. Select **Run**.
 - c. Type REGEDIT in the field provided and select **OK**. The Registry menu appears. Make sure that the top-level folder (in the upper left of the window) is the My Computer folder.
 - d. Select **Registry**.
 - e. Select **Export Registry File**.
 - f. In the Save in field, select drive C from the pull-down menu and select the Windows folder from the directory menu.
 - g. Type PRIMARY.REG in the File name field and select **Save**.
7. Modify the Windows 95 Registry with dummy values.

Note: A good working knowledge of the Windows 95 Registry is required. Any errors in the Registry might keep the workstation from functioning properly. Record all steps you take when editing the Registry.

- a. Select **Edit**.
- b. Select **Find**. Search for the Value name that identifies either a common or unique parameter for a client workstation.

An example of the Value name of a common parameter is:

Workgroup This parameter identifies the workgroup to which the client workstation is connected to.

An example of the Value name of a unique client parameter is:

ProductId This parameter identifies the Windows 95 product license. Each client workstation must have its own ProductId.

Note: Always start a search for a new attribute at the top of the Registry file (the My Computer folder).

- c. When an attribute is found, click on the secondary mouse button, and select **Modify** from the pop-up menu.
- d. In the Edit String dialog box, the Value Data string is highlighted. Change this value to a dummy value and select **OK**.

Use the following lists to add dummy values to the Registry.

COMMON PARAMETERS

Search for Value Name =====	Replace Value data with =====
Domain	dummy_DomName
Workgroup	dummy_Wkgrp
NameServer	dummy_NameServ
IPMask	dummy_IPMask
DefaultGateway	dummy_DefGate
RegisteredOwner	dummy_RegName

UNIQUE CLIENT PARAMETERS

Search for Value Name =====	Replace Value data with =====
ComputerName	dummy_CName
IPAddress	dummy_IPAddr
HostName	dummy_Hname
ProductID	dummy_IDNum
username	dummy_user

When other applications are added to Windows 95, the Registry changes. These changes have common and unique attributes for each client workstation. If other applications are included in the donor image, here are some Registry file considerations:

- Search for the application program's name, or part of the program name.
 - As some programs use the same first starting characters to begin the name of their .DLL or .EXE entries, search for these starting characters.
- e. After you have modified the Registry with dummy statements, select **Registry** from the menu bar.
 - f. Select **Export Registry File**.
 - g. In the Save in field, select drive C from the pull-down menu and select the Windows folder from the directory menu.
 - h. Select the **All** radio button in the Export range section.
 - i. Type CLONE.REG in the File name field and select **Save**.

You now have two Registry files: PRIMARY.REG, which contains the original values, and CLONE.REG, which contains dummy values.

8. Assign the donor boot startup image and connect the donor workstation to the network as described in the procedure "Using a Donor Workstation Startup Image" on page 63.
9. Change the directory to the local-disk root directory (drive D).
10. Create the Windows 95 backup image batch file to prepare the Windows 95 image and transport it to the server.

```

D:
CD \
\LANCLI\DISKDOS /F=D:\LANCLI\W95BT /D=D /R=R
\LANCLI\LCATTRIB D:\ /A /S
\LANCLI\DOSLFBK D:\
C:
MD \LCCM\WIN95
CD \LCCM\WIN95
C:\LCCM\PKZIP C:\LCCM\WIN95\WIN95.ZIP -r -P D:\*.*
D:
CD \
\LANCLI\LCATTRIB D:\ /R /S

```

11. Save the batch file as BACKUP.BAT on the donor workstation.
12. Copy the file AUTOEXEC.BAT to the LANCLI directory.
13. Add the following line to the end of the AUTOEXEC.BAT file in the root directory:
C:\LANCLI\REGISTRY.BAT

14. Create the file REGISTRY.BAT with the following content:

```

C:
CD\WINDOWS
REGEDIT /L:C:\WINDOWS\SYSTEM.DAT /R:C:\WINDOWS\USER.DAT /C CLONE.REG
CD\
DEL AUTOEXEC.BAT
COPY C:\LANCLI\AUTOEXEC.BAT C:\

```

15. Run BACKUP.BAT. You are now finished with the donor workstation. You can use REGEDIT in the C:\WINDOWS directory to restore the donor Registry with the file PRIMARY.REG.
16. Go the administrator console, and create a preload-image batch file.

Note: This is an optional step for LANClient Control Manager. A preload-image batch file is needed only if you want to partition the client hard disk drive before installing the image.

Using a text editor, create a preload-image batch file with the following content:

```

C:\LCCM\LCBTRDEL 0 /S
C:\LCCM\INTER.EXE FDISK < C:\LCCM\LC5050FD.DAT

```

For more information, see “Preload-Image Batch File” on page 128.

Important: If the size of the client workstation hard disk is 4 GB or greater, you cannot use LC5050FD.DAT. LC5050FD.DAT creates a primary DOS partition that is 50% of the hard disk space, and this partition cannot exceed 2 GB. For information on creating your own response files, see “Response Files for the FDISK Command” on page 134.

17. Save the preload-image batch file as:

```

\LCCM_install_dir\CLNTFILE\PRELOAD.LCP

```

18. Use a text editor to create a final-image batch file. This downloads the Windows 95 image to the client, replaces the dummy values in the CLONE.REG file with parameters defined within the LANClient Control Manager's notebook, and merges the CLONE.REG file back into Windows 95's Registry.

```

FORMAT D: < C:\LCCM\FORMAT.DAT
D:
CD \
C:\LCCM\PKUNZIP -d C:\LCCM\WIN95\WIN95.ZIP D:
\LANCLI\DOSLFBK D:\ /R
\LANCLI\DISKDOS /F=D:\LANCLI\W95BT /R=W /D=D
\LANCLI\LCATTRIB D:\ /R /S
CD \WINDOWS
D:\LANCLI\DEDITD /R /NO CLONE.REG dummy_DomName %DOMAIN%
D:\LANCLI\DEDITD /R /NO CLONE.REG dummy_Wkgrp %WORKGROUP%
D:\LANCLI\DEDITD /R /NO CLONE.REG dummy_NameServ %NAMESERVER%
D:\LANCLI\DEDITD /R /NO CLONE.REG dummy_IPMask %IPMASK%
D:\LANCLI\DEDITD /R /NO CLONE.REG dummy_DefGate %GATEWAY%
D:\LANCLI\DEDITD /R /NO CLONE.REG dummy_RegName %REGNAME%
D:\LANCLI\DEDITD /R /NO CLONE.REG dummy_CName %COMPNAME%
D:\LANCLI\DEDITD /R /NO CLONE.REG dummy_IPAddr %IPADDR%
D:\LANCLI\DEDITD /R /NO CLONE.REG dummy_Hname %HOSTNAME%
D:\LANCLI\DEDITD /R /NO CLONE.REG dummy_IDNum %PRODUCTID%
D:\LANCLI\DEDITD /R /NO CLONE.REG dummy_user %USERNAME%

```

19. Save the final-image batch file as:

```
LCCM_install_dir\CLNTFILE\WIN95.LCI
```

20. At the Installation/Maintenance window of LANClient Control Manager, do the following:

- a. Select **Profile** from the menu bar.
- b. Select **Create New**. This opens the Software Profile Details notebook.

21. On the Details page:

- Type WIN95_Test in the Profile Name field.
- **Note:** The remainder of this exercise refers to the software profile as WIN95_Test.
- Click on the Hybrid RPL radio button.
- Type Windows 95 Operating System in the Description field.

22. On the Minimum HW page:

- Select **Any Adapter - Don't Care** from the drop-down menu of the Network Adapter field.
- Select **Any Video - Don't Care** from the drop-down menu of the Video Chipset field.
- Type **0** in the RAM field.
- Type **0** in the Hard Disk field.

23. On the RPL Details page, use the browse button to find:

- In the Preload Image File Name field:
PRELOAD.LCP
- In the Final Image File Name field:
WIN95.LCI

Also, ensure that the Enable Preload box is checked.

24. On the Parameters page, set up the following parameter names:

Names	Values
=====	=====
DOMAIN	Type in the domain name
WORKGROUP	Type in the workgroup
NAMESERVER	Type in the machine's nameserver
IPMASK	Type in the IP mask
GATEWAY	Type in the default gateway
REGNAME	Type in the registered owner (network administrator)

Note: The values on this page are common for all clients using this profile.

25. On the Client Parameters page, set up the following parameter names:

Names	Values
=====	=====
COMPNAME	- Leave Blank -
IPADDR	- Leave Blank -
HOSTNAME	- Leave Blank -
PRODUCTID	- Leave Blank -
USERNAME	- Leave Blank -

Note: The names used on this page are passed to the Parameters page of the Individual Client Details notebook for each client assigned to this profile. For additional information about other special parameters, see “Parameter Exceptions” on page 67.

26. Select **OK** to save and close the notebook.
27. Assign the client to the new software profile, but **DO NOT PROCESS THE CHANGES UNTIL INSTRUCTED TO DO SO IN A LATER STEP OF THIS EXERCISE.** (For more information, see “Assigning Clients to Software Profiles” on page 74)
28. Open the Individual Client Details notebook for the new client assigned to this image (See “Modifying an Existing Client” on page 77 for details.)
- a. On the Parameters page, setup the values for the following names:

Names	Values
=====	=====
COMPNAME	Type in the client's computer name
IPADDR	Type in the client workstation's IP address
HOSTNAME	Type in the client workstation's network name
PRODUCTID	Type in the Windows 95 Product ID number
USERNAME	Type in the user's name

- b. Select **OK** to save and close the notebook.
29. Click on the **Process** button in the Installation/Maintenance window to begin processing.
30. Turn on the client workstation.

If you used a preload-image batch file, the client hard disk is partitioned. Next, the hard disk is formatted, and the image is downloaded to the client hard disk and is customized for that specific client. The next time the client is started, it starts Windows 95 from its own hard disk.

Additional clients can be assigned to the same profile. However, before processing the additional assignments, edit the Individual Client Details notebook for each new client and modify the Parameters page as described in this exercise.

Windows NT Workstation Image

There are two exercises in this section:

- To perform a Windows NT Workstation installation without additional application software see “Installing Windows NT Workstation Without Applications.”
- To perform a Windows NT Workstation installation with additional application software see “Installing Windows NT Workstation With Applications” on page 111.

The benefit of maintaining control of the download and distribution process through LANClient Control Manager is the flexibility you gain by having the ability to pass individual client parameter values to the Windows NT UNATTEND.TXT file instead of using the Windows NT .UDF file for each individual client.

Installing Windows NT Workstation Without Applications

This exercise remotely installs a Windows NT Workstation image on a client workstation using a server running Windows NT Server software and LANClient Control Manager. Some experience with Windows NT Server is required to complete this exercise. Before starting this exercise, review the information in “Editing the Windows NT Workstation Answer File” on page 115.

Objective: This exercise:

- Sets up a client workstation
- Adds the client workstation to the LANClient Control Manager database
- Installs a Windows NT Workstation image on your server and sets up a Distribution Sharepoint
- Edits a Windows NT answerfile for unattended installation
- Creates a preload-image batch file to set up multiple partitions on the client hard disk (optional)
- Creates a customization batch file to pass personalized parameters to the answerfile
- Creates a software profile for the Windows NT Workstation image (including personalized parameter values)
- Assigns the client workstation to the software profile
- Modifies the Individual Client Details notebook for personalized parameter values
- Downloads the Windows NT Workstation image to the client workstation

Before you begin, you will need the following:

- A server attached to the LAN. The server must be configured with Windows NT Server software and either the server or another client workstation must have LANClient Control Manager already installed.
- The LANClient Control Manager Defaults notebook must be set up with the proper default information. (For details, see “Setting Specific Defaults Prior to Scanning” on page 57.)
- The Windows NT Workstation CD
- Two licenses for Windows NT Workstation
- A client workstation. This workstation must have a network adapter installed and meet the minimum hardware requirements to run Windows NT Workstation.
- Access to the *Windows NT Workstation Resource Kit* and documentation.
- The device driver diskette for the network adapter installed in the client workstation.

To install Windows NT without additional applications:

1. Install your client workstation and attach it to the LAN. (See “Installing New Client Workstations” on page 56 for details.)
2. Start LANClient Control Manager and scan for new client workstations. (See “Using the Scan Feature” on page 58 for details.)
3. Use the following procedure to copy the required files and directories from the Windows NT Workstation CD to the appropriate directory on your server. This will become your Distribution Sharepoint.

- a. From a command prompt, type:

```
CHDIR C:\LCCM_install_dir\CLNTFILE
```

where: *C:\LCCM_install_dir* is the drive and directory where LANClient Control Manager is installed.

Then, press Enter.

- b. Type:

```
MKDIR \WINNT40
```

Then, press Enter.

- c. Type:

```
MKDIR \WINNT40\I386
```

Then, press Enter.

- d. Insert the Windows NT CD into the CD-ROM drive.

- e. Type:

```
XCOPY D:\I386\*.* C:\LCCM_install_dir\CLNTFILE\WINNT40\I386 /S /E /V
```

where: *D:* is the CD-ROM drive letter.

Then, press Enter.

Note: Only the files and directories from \I386 and below need to be copied from the CD.

Important: The WINNT40 directory on your server is now the Windows NT Distribution Sharepoint for the software profile you will create in this exercise. Any other Windows NT Distribution Sharepoints that you create for use with LANClient Control Manager also must reside under:

```
C:\LCCM_install_dir\CLNTFILE\
```


4. Use the following procedure to create the required directory structure for network adapter device drivers.

Note: For IBM PC 300 GL workstations with integrated Ethernet (Crystal EtherStreamer subsystems), in place of steps 4 through 6, use the procedure on the LANClient Control Manager home page at:

<http://www.pc.ibm.com/us/desktop/lccm/index.html>

to update the answer file for unattended installation. Also, use the answer file UNATTEN1.TXT as a base file to work from and save it in the `\LCCM_install_dir\CLNTFILE` directory as MYPROF.TXT. If the file UNATTEN1.TXT was not provided with your copy of LANClient Control Manager, you can download it from the World Wide Web at the address given above.

- a. Type:

```
CHDIR C:\LCCM_install_dir\CLNTFILE\WINNT40\I386
```

Then, press Enter.

- b. Type:

```
MKDIR \%OEM%
```

Then, press Enter.

- c. Type:

```
MKDIR \%OEM%\NET
```

Then, press Enter.

5. Create a sub-directory under the `\%OEM%\NET` directory for each type of network adapter installed in the client workstations that will be receiving the image. You can give the sub-directories any name you want.

Into each of the new sub-directories, copy the .SYS file and the OEMSETUP file for Windows NT from the network adapter device driver diskettes. Ensure you copy only the files that support Windows NT. For example, if your client is using an IBM Token Ring 16/4 Auto ISA Network Adapter, you must create a sub-directory under the `\%OEM%\NET` directory to place the device driver for this adapter. Give the directory a recognizable name, such as `\IBMTOK`. Into the `\%OEM%\NET\IBMTOK` directory, copy the following files from the `\NT` directory of the device driver diskette that came with the adapter:

- OEMSETUP.INF
- IBMTOK4.SYS

Note: For IBM PCI Token Ring and Intel 10/100 adapters, include the following files into the sub-directories:

- All .HLP files
- All .DLL files

Make a note of each network adapter type and the directory name you created for each network adapter. You will need this information in step 6c on page 106 of this exercise.

6. Edit the Windows NT answerfile, UNATTEND.TXT.

Note: In the following steps, you will be modifying the Windows NT answerfile so you can perform unattended installations in your network environment. You will also assign specific character strings to certain fields within the answerfile so you can use LANClient Control Manager variables to personalize the image when it is downloaded. It is important that you have some basic working knowledge of editing answerfiles before performing the following steps. For details, see “Editing the Windows NT Workstation Answer File” on page 115.

To simplify this exercise, you will use a sample answerfile (UNATTEND.TXT) provided by LANClient Control Manager in the following directory:

```
C:\LCCM_install_dir\CLNTFILE
```

In an actual work situation, you might use one of the answerfiles (UNATTEND.TXT) provided by Windows NT and modify it as needed; for example, the one located in the directory:

```
C:\LCCM_install_dir\CLNTFILE\WINNT40\I386
```

- a. Using a text editor, open the UNATTEND.TXT file located in the following directory of your server:

```
C:\LCCM_install_dir\CLNTFILE
```

- b. Locate the following fields:

```
[UserData]
OrgName = "dummy_Org"
Fullname = "dummy_username"
ComputerName = dummy_Client
ProductId = dummy_Id
```

```
[Network]
JoinDomain = dummy_Domain
```

```
[IBMTOKParamSection]
NetworkAddress = dummy_Caddress
```

Normally, you would have to edit the file and replace the default names for these parameters with "dummy" names. The sample file provided by LANClient Control Manager already has the dummy names in it. These dummy names will be referenced in the customization batch file that you will create in a later step. When the image is downloaded, the customization batch file will replace the dummy names with values that are unique to each individual client.

- c. If your clients are using a network adapter or subsystem other than a Token Ring 16/4 Auto ISA Network Adapter or an integrated Crystal Ether Streamer subsystem, edit the answerfile to add the appropriate information.

Note: The [SelectedAdaptersSection] and [adapter_directoryParamSection] sections relate directly to the network device driver directory you set up within your Distribution Sharepoint earlier in this exercise. Refer to “Editing the Windows NT Workstation Answer File” on page 115, and the *Windows NT Workstation Resource Kit* for additional information.

- d. Name the file MYPROF.TXT and save it in the following directory:

```
C:\LCCM_install_dir\CLNTFILE
```

This file can have any name you want, but the extension must be .TXT. The name MYPROF.TXT will be used throughout the remainder of this exercise.

7. Create a preload-image batch file.

Note: This step is required only if you want more than one partition on the client's hard disk. If a preload-image batch file is not used, Windows NT will use the client's entire hard disk as a single partition.

- a. Using a text editor, create a preload-image batch file that contains the following contents only:

```
C:\LCCM\LCBTRDEL 0 /S
C:\LCCM\INTER.EXE FDISK < C:\LCCM\LC5050FD.DAT
```

The INTER.EXE, FDISK.COM, and sample LC5050FD.DAT files are supplied with LANClient Control Manager.

Important: If the size of the client workstation hard disk is 4 GB or greater, you cannot use LC5050FD.DAT. LC5050FD.DAT creates a primary DOS partition that is 50% of the hard disk space, and this partition cannot exceed 2 GB. For information on creating your own response files, see “Response Files for the FDISK Command” on page 134.

- b. Name the file PRELOAD.LCP, and save it in the following directory:

```
C:\LCCM_install_dir\CLNTFILE
```

Note: This file can have any name you want, but the extension must be .LCP. The name PRELOAD.LCP will be used throughout the remainder of this exercise.

8. Create a customization batch file.

Note: The following steps instruct you on how to create a batch file that will use variables to replace parameters within the answerfile. By doing so, you can use the same answerfile with multiple clients and get customized responses for each individual client. The variables (%CNAME%, %USERNAME%, %PRODUCTID%, %DOMAIN%, and %CADDRESS%) used in the batch file correlate to the variables you will use in later steps when you create a Software Profile Details notebook and edit the Individual Client Details notebook. For a more detailed explanation, see “Editing the Windows NT Workstation Answer File” on page 115.

- a. Using a text editor, create a customization batch file that contains the following contents only:

```
D:
C:\LCCM\DEDITD /R /NO D:\ANSW1.TXT dummy_Client %CNAME%
C:\LCCM\DEDITD /R /NO D:\ANSW1.TXT dummy_Username %USERNAME%
C:\LCCM\DEDITD /R /NO D:\ANSW1.TXT dummy_Id %PRODUCTID%
C:\LCCM\DEDITD /R /NO D:\ANSW1.TXT dummy_Domain %DOMAIN%
C:\LCCM\DEDITD /R /NO D:\ANSW1.TXT dummy_Address %CADDRESS%
C:\LCCM\DEDITD /R /NO D:\ANSW1.TXT dummy_Org %ORNAME%
```

Note: When the answerfile is downloaded to the client, it is automatically renamed as ANSW1.TXT, regardless of what you actually named it. Therefore, within the customization batch file, the only valid name for an answerfile is ANSW1.TXT. The dummy names and the text within the % signs are case sensitive.

- b. Name the file MYPROF.LCI and save it in the following directory:

C:\LCCM_install_dir\CLNTFILE

Note: This file can have any name you want, but the extension must be .LCI. The name MYPROF.LCI will be used throughout the remainder of this exercise.

9. At the Installation/Maintenance window of LANClient Control Manager, do the following:
 - a. Select **Profile** from the menu bar.
 - b. Select **Create New**. This opens the Software Profile Details notebook.

10. On the Details page:

- Type Windows_NT_WS_Test in the Profile Name field. This name is used throughout the remainder of this exercise.
- Click on the Hybrid-NT RPL button.
- In the description field, type a description, such as:
Windows NT Workstation Version 4.0
No applications
Includes customization

11. On the Minimum Hardware page:

- Select **Any Adapter - Don't Care** from the drop-down menu of the Network Adapter field.
- Select **Any Video - Don't Care** from the drop-down menu of the Video Chipset field.
- Type **16** in the RAM field.
- Type **300** in the Hard Disk field.

12. On the RPL Details Page, use the Browse button for each field to locate the following files:

Note: Do not specify a name for the preload image file unless you actually created a preload-image batch file earlier in this exercise.

- Preload Image File Name:
\\servername\LANC\$\$\PRELOAD.LCP
- Answerfile:
\\servername\LANC\$\$\MYPROF.TXT
- Customization Batch File:
\\servername\LANC\$\$\MYROF.LCI
- Distribution Sharepoint:
\\servername\LANC\$\$\WINNT40

13. On the Parameter's page, set up the following parameter names:

Names	Values
=====	=====
ORGNAME	Type in the name of your company or organization

Note: The values on the Parameters page are constants that are the same for all clients assigned to this profile.

14. On the Client Parameters page, set up the following parameter names and values

Names	Values
=====	=====
USERNAME	- Leave Blank -
PRODUCTID	- Leave Blank -
DOMAIN	- Leave Blank -

Note: The names and values assigned on this page are passed to the Parameters page of the Individual Client Details notebook for each client assigned to this

profile. Although you used the values %CNAME and %CADDRESS in your customization batch file, you do not need to specify them on this page. %CNAME and %CADDRESS are special values that pick up the contents of the Name and Address fields from the Details page of each Individual Client Details notebook.

15. Click on the **OK** button to save and close the notebook.
16. Assign the client to the new software profile, but **DO NOT PROCESS THE CHANGE UNTIL INSTRUCTED TO DO SO BY A LATER STEP IN THIS EXERCISE**. (For more information, see “Assigning Clients to Software Profiles” on page 74.)
17. Open the Individual Client Details notebook for the new client assigned to this image (For more information, see “Modifying an Existing Client” on page 77.)
 - a. On the Parameters page, setup the values for the following names:

Names	Values
=====	=====
USERNAME	Type in a users name.
PRODUCTID	Type in the Product Identification number from the Windows NT Certificate of Authenticity (COA).
DOMAIN	Type in the Domain to be used by the client workstation.
 - b. Click on the **OK** button to save and close the notebook.
18. Click on the **Process** button on the Installation/Maintenance window.
19. Turn on the client workstation.

The C: partition of the client workstation's hard disk is formatted automatically, and the Windows NT Workstation image is downloaded to the hard disk of the client workstation. The next time the client workstation is started, it starts Windows NT Workstation from its own hard disk.

Additional workstations can be assigned to the same image. However, before processing the additional assignments, edit the Individual Client Details notebook for each new client and modify the Parameters page as described in this exercise.

Installing Windows NT Workstation With Applications

Objective: To remotely install Windows NT Workstation with application programs that are not part of Windows NT Workstation.

Before you begin:

- The procedures in this exercise use the SYSDIFF.EXE program provided with the *Windows NT Workstation Resource Kit*. Review the information in the *Windows NT Workstation Resource Kit* so that you are familiar with using the SYSDIFF.EXE program.
- This exercise uses Lotus SmartSuite as the application programs. You can substitute other software. Make sure you have an adequate number of licenses for the application programs you intend to distribute.
- You will need two Windows NT Workstation licenses for each additional client workstation you add to the LAN in this exercise. Two licenses are needed during the download process. When the download is complete, only one license is required. You can minimize the number of required licenses by editing the Processing page of Defaults notebook to limit the number of clients that can download the image concurrently. See “Defaults Notebook - Processing Page” on page 26 for details.

To install Windows NT with additional applications:

1. Complete all of the steps in “Installing Windows NT Workstation Without Applications” on page 103.
2. After the Windows NT image has been downloaded to the client, test the client to ensure Windows NT is operating correctly. This client workstation will be referred to as the donor workstation throughout the remainder of this exercise.
3. Copy the SYSDIFF.EXE program from the *Windows NT Workstation Resource Kit CD* to the root directory of the donor workstation.
4. Create the SYSDIFF.INF file on the root directory of the donor workstation. This file is necessary in developing the base NT image file. This text file includes and excludes certain files and directories for the proper operation of SYSDIFF.EXE. The basic SYSDIFF.INF file is as follows:

```
[Version]
Signature = $chicago$
;
; General notes for file/dir exclusion sections:
;
; *: refers to all drives.
; ?: refers to the drive with the system on it.
; :: is substituted with %systemroot%
;

[ExcludeDrives]
;
; The first character on each line is the drive letter
; of a drive to exclude.
;
d
e
```

```

[ExcludeDirectoryTrees]
;
; Each line is a fully-qualified path of a tree to
; be excluded. The directory and all of its subtrees
; are excluded.
;
*:\recycled
*:\recycler

[ExcludeSingleDirectories]
;
; Each line is a fully-qualified path of a directory to be
; excluded. The directory's subdirs are NOT excluded.
;
::\system32\config

[ExcludeFiles]
;
; Each line is a fully-qualified path of a file to be excluded.
; If it does not start with x:\ then we assume it's a filename part
; for a file to be excluded wherever it is found.
;
*:\pagefile.sys
ntuser.dat
ntuser.dat.log

[IncludeFilesInDir]
;
; Each line in here is a fully qualified path of a directory
; whose files are all to be included in a diff (marked as
; added/changed). Use this if you want to include files in the diff
; that might not have actually been changed.
;

[ExcludeRegistryKeys]
;
; Each line indicates a single registry key to be excluded.
; Subkeys of this key are not excluded.
;
; The first field is one of HKLM or HKCU
; The second field is the subkey, which must NOT start with a \.
;

[ExcludeRegistryTrees]
;
; Each line indicates a registry key and subkeys to be excluded.
;
; The first field is one of HKLM or HKCU
; The second field is the subkey, which must NOT start with a \.
;

[ExcludeRegistryValues]
;
; Each line indicates a registry value entry to be excluded.
;
; The first field is one of HKLM or HKCU.
; The second field is the subkey, which must NOT start with \.
; The third field is the value entry name.
;

```


5. From the root directory of the donor workstation, run the SYSDIFF.EXE program using the following command:

```
SYSDIFF /SNAP NTBASE.DIF
```

This command takes a snapshot of Windows NT Workstation as it is currently installed on the donor workstation. NTBASE.DIF is the name used in this exercise for the file that will contain this snapshot.

Ensure that the donor workstation is of the same general type as the destination workstations, and that the %SYSTEMROOT% is the same on both the source and destination, for example C:\WINNT40.

6. Install Lotus SmartSuite on the donor workstation.
7. From the root directory of the donor workstation, run the SYSDIFF program again using the following command:

```
SYSDIFF /DIFF NTBASE.DIF LOTDIF.DIF
```

This command creates a difference file called LOTDIF.DIF, which contains all of the files for Lotus SmartSuite including the initialization file settings and registry file settings.

Note: This file can have any name you want, but the extension must be .DIF. The name LOTUS.DIF will be used throughout the remainder of this exercise.

8. At the server console, create a sub-directory called LOTUS under the \$OEM\$ directory of your Distribution Sharepoint.

```
C:\LCCM_install_dir\CLNTFILE\WINNT40\I386\OEM$\LOTUS
```

Note: This sub-directory can have any name you want. The name LOTUS will be used for this sub-directory throughout the remainder of this exercise.

9. Copy the LOTDIF.DIF file from the donor workstation to the LOTUS sub-directory in your Distribution Sharepoint.
10. Copy the SYSDIFF.EXE program from the donor workstation to the following directory:

```
C:\LCCM_install_dir\CLNTFILE\WINNT40\I386
```

11. From the command line of your server's console, run SYSDIFF.EXE:

```
C:\path_1\SYSDIFF /INF /M C:\path_2\LOTDIF.DIF C:\path_3\I386
```

where:

- *path_1* is \LCCM_install_dir\CLNTFILE\WINNT40\I386\
- *path_2* is \LCCM_install_dir\CLNTFILE\WINNT40\I386\OEM\$\LOTUS\
- *path_3* is \LCCM_install_dir\CLNTFILE\WINNT40\

SYSDIFF.EXE reads the .INF file and unpacks the contents according to the directory structure on the donor workstation. It creates two other files:

- CMDLINES.TXT
- LOTDIF.INF

These are used when files are copied down to the client workstation.

CMDLINES.TXT is the command line that reads the LOTDIF.INF file and executes the file downloading process described by the LOTDIF.INF file.

12. Install one or more additional client workstations on the LAN. (For more information, see "Installing New Client Workstations" on page 56.)

13. Start LANClient Control Manager and Scan for new client workstations. (For more information, see “Using the Scan Feature” on page 58.)
14. Assign the clients to this software profile (Windows_NT_WS_Test), but **DO NOT PROCESS THE CHANGE UNTIL INSTRUCTED TO DO SO BY A LATER STEP IN THIS EXERCISE**. (For more information, see “Assigning Clients to Software Profiles” on page 74.)
15. Open the Individual Client Details notebook for each new client assigned to this image (For more information, see “Individual Client Details Notebook” on page 31.)
 - a. On the Parameters page, setup the values for the following names:

Names	Values
=====	=====
USERNAME	Type in a users name.
PRODUCTID	Type in the Product Identification Number from the Windows NT Certificate of Authenticity (COA).
DOMAIN	Type in the Domain to be used by the client workstation.
 - b. Click on the **OK** button to save and close the notebook.
16. Click on the **Process** button on the Installation/Maintenance window.
17. Turn on the client workstation.

The client workstation's hard disk will be formatted automatically and the Windows NT Workstation image (including Lotus SmartSuite) will be downloaded to the hard disk of the client workstation. The next time the client workstation is started, it will start Windows NT Workstation from its own hard disk.

Additional workstations can be assigned to the same image. However, before processing the assignment, edit the Individual Client Details notebook for each new client and modify the Parameters page as described in this exercise.

Editing the Windows NT Workstation Answer File

The instructions in this section give a walk through of editing the sample answer file supplied with LANClient Control Manager and the subsequent steps required to use the answer file with LANClient Control Manager. By following the steps in this section, you will be able to develop an unattended Windows NT Workstation installation process that you can use. The complete UNATTEND.TXT answer file supplied by the Microsoft Corporation has many more features than those discussed in this section. It is important that you read Chapter 2 and Appendix A of the *Windows NT Workstation Resource Kit*, produced by Microsoft Press, before continuing. The Resource Kit also has a utility program included (SETUPMGR.EXE), which allows you to fully customize the unattended answer file using a graphical user interface.

Note: The terms and conditions of the IBM Program License Agreement for LANClient Control Manager do not grant any license to install, copy, or use Windows, Windows 95, Windows NT Workstation, DOS, or any other program that is not part of LANClient Control Manager. Ensure that you have obtained suitable licenses for any software you use with LANClient Control Manager.

A sample answer file, UNATTEND.TXT, is supplied with LANClient Control Manager. You can find this file in the *LCCM_install_dir*\CLNTFILE directory. Use this answer file as a base template to work from. The information that typically needs to be modified is in sections such as [UserData] or [Network]. You must also include an [adapter_directoryParamSection] for each adapter you are using on your network. In the sample answer file provided, the [IBMTOKParamSection] will locate the client's network adapter device driver and information file in the directory:

```
\LCCM_install_dir\CLNTFILE\WINNT4.0\I386\%OEM%\NET\IBMTOK
```

where: *LCCM_install_dir* is the directory where LANClient Control Manager is installed.

The instructions for this are detailed in “Installing Windows NT Workstation Without Applications” on page 103.

Important: If you are working with clients that have not been attached to the Windows NT domain, LANClient Control Manager will automatically create a Computer Account for these clients, however, you must include the JoinDomain line in the Network section of the answer file for this to be possible. The Computer Account name created within Windows NT will be the same name as the client name used by LANClient Control Manager, for example CLNT_5.

There are other areas in the answer file that you might want to modify. These depend on the type of network you are running and the applications being used. The following steps give a walk through of the entire procedure.

1. Edit the answer file.
 - a. Edit the sample answer file provided by LANClient Control Manager. You can use either a text editor or the utility program SETUPMGR.EXE supplied with the *Windows NT Workstation Resource Kit*, produced by Microsoft Press.
 - b. Identify the parameters that you want to customize. (It might be possible for you to use the answer file using the dummy values already given).

- c. Rename any additional parameters that you want to replace with variables, by changing the given parameter name to `dummy_YourParameterName`. Using this type of naming convention makes these parameters stand out from the rest, and standardizes the naming convention for variable parameters that will be used by LANClient Control Manager. Make all other required changes.

The full answer file provided by LANClient Control Manager is as follows:

```
; Sample NT Workstation Answer file for use
; with LANClient Control Manager.

[Unattended]
OemPreinstall = yes
OemSkipEula = yes
NoWaitAfterTextMode = 1
NoWaitAfterGUIMode = 1
FileSystem = LeaveAlone
ExtendOEMPartition = 0
ConfirmHardware = no
NtUpgrade = no
Win31Upgrade = no
TargetPath = *
OverwriteOemFilesOnUpgrade = no
KeyboardLayout = "US-International"

[UserData]
OrgName = "dummy_Org"
Fullname="dummy_Username"
Computername = dummy_Client
ProductId="dummy_Id"

[GuiUnattended]
OemSkipWelcome = 1
OEMBlankAdminPassword = 1
TimeZone = "(GMT) Greenwich Mean Time"

[Display]
ConfigureAtLogon = 0
BitsPerPel = 8
XResolution = 640
YResolution = 480
VRefresh = 60
AutoConfirm = 1

[Network]
InstallAdapters = SelectedAdaptersSection
InstallProtocols = ProtocolsSection
InstallServices = ServicesSection
JoinDomain = dummy_Domain

[SelectedAdaptersSection]
ibmtok = IBMTOKParamSection, \${OEM$}\NET\IBMTOK

[IBMTOKParamSection]
IOBaseAddress = 1
NetworkAddress = dummy_Address

[ProtocolsSection]
NBF = NBFParamSection

[NBFParamSection]

[ServicesSection]
```

Important: The following are important settings that must be used in the UNATTEND.TXT answer file in order to ensure that the installation can be completed without end-user intervention at the client:

```
[Unattended]
OemPreinstall = yes : This needs to be set to yes if
                      you are installing, either new network
                      drivers, or applications and files that
                      are not part of the base NT.
OemSkipEula = yes : This needs to be set to yes in order
                   to skip displaying the Microsoft end user
                   license agreement (EULA) section.
NoWaitafterTextMode = 1 : This must be set to 1 so the
                        client automatically reboots after the
                        text mode setup and file copy.
NoWaitAfterGuiMode = 1 : This must be set to 1 so the
                       client automatically reboots after
                       graphical user interface (GUI) setup.
```

- d. Save the answer file using a new file name and a .TXT file extension. For the purpose of this discussion, we saved the answer file as:

```
\\servername\LANC$$\MYPROF.TXT
```

Important: If you intend to run LANClient Control Manager from a remote workstation, you must use the full UNC path when specifying files and directories within LANClient Control Manager, for example:

```
\\servername\sharename\directory\filename
```

The following share is automatically created by LANClient Control Manager to point toward `\LCCM_install_dir\CLNTFILE`:

```
\\servername\LANC$$
```

2. Create a customization batch file.

- a. Create a customization batch file that uses the DEDITD utility program provided with LANClient Control Manager (see “DEDITD” on page 132 for details). By using DEDITD commands in the customization batch file, you can replace parameters in the answer file with client-specific parameter values when the answer file is downloaded to each client. Parameter values are taken from the Software Profile Details notebook and the Individual Client Details notebook. In this way, you dynamically create a unique answer file for each client during the download process. Your customization batch file should look something like the following:

```
REM The unattended answer file UNATTEND.TXT (or whatever
REM file name you specify as the answer file in the RPL
REM Details page) is automatically renamed as ANSW1.TXT
REM when it is copied down onto the client. You must
REM always specify the answer file file name as ANSW1.TXT
REM in this batch file when using the DEDITD.EXE utility.
REM During the RPL process, the client's C:\ drive is
REM temporarily renamed to D:\.
D:
C:\LCCM_install_dir\CLNTFILE\DEDITD /R /NO D:\ANSW1.TXT dummy_Client %CNAME%
C:\LCCM_install_dir\CLNTFILE\DEDITD /R /NO D:\ANSW1.TXT dummy_Username %USERNAME%
C:\LCCM_install_dir\CLNTFILE\DEDITD /R /NO D:\ANSW1.TXT dummy_Id %PRODUCTID%
C:\LCCM_install_dir\CLNTFILE\DEDITD /R /NO D:\ANSW1.TXT dummy_Org %COMPANY%
C:\LCCM_install_dir\CLNTFILE\DEDITD /R /NO D:\ANSW1.TXT dummy_Domain %DOMAIN%
C:\LCCM_install_dir\CLNTFILE\DEDITD /R /NO D:\ANSW1.TXT dummy_Caddress %CADDRESS%
```

Important:

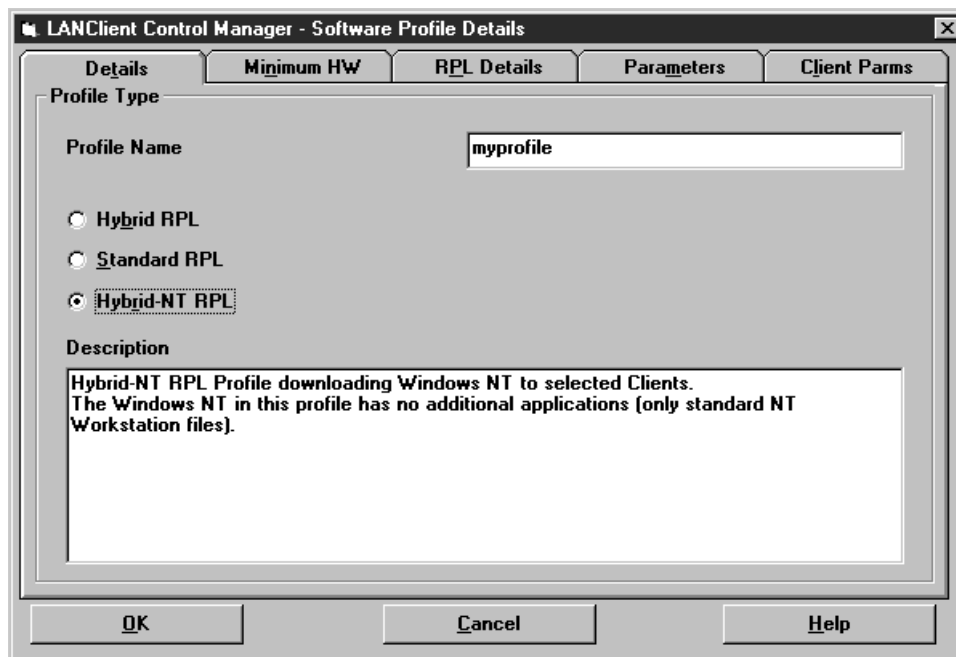
- The unattended answer file, UNATTEND.TXT (or whatever file name you specified as the answer file in the RPL Details page of the Software Profile Details notebook), is automatically renamed as ANSW1.TXT when it is copied down onto the client. Therefore, you must specify the answer file name as ANSW1.TXT in the customization batch file.
- During the download process, the client's drive C is temporarily renamed as drive D.
- There are three parameter exceptions that you do not have to specify within the Software Profile Details notebook or the Individual Client Details notebook. LANClient Control Manager automatically passes these special parameters during the download process to any batch files that have the following values specified:
 - %CNAME% will be replaced automatically by the client name.
 - %CADDRESS% will be replaced automatically by the client network address.
 - %CSERIAL% will be replaced automatically by the client workstation serial number. %CSERIAL% is not shown in the example answer file, but you can include it in your own answer file if you need to.

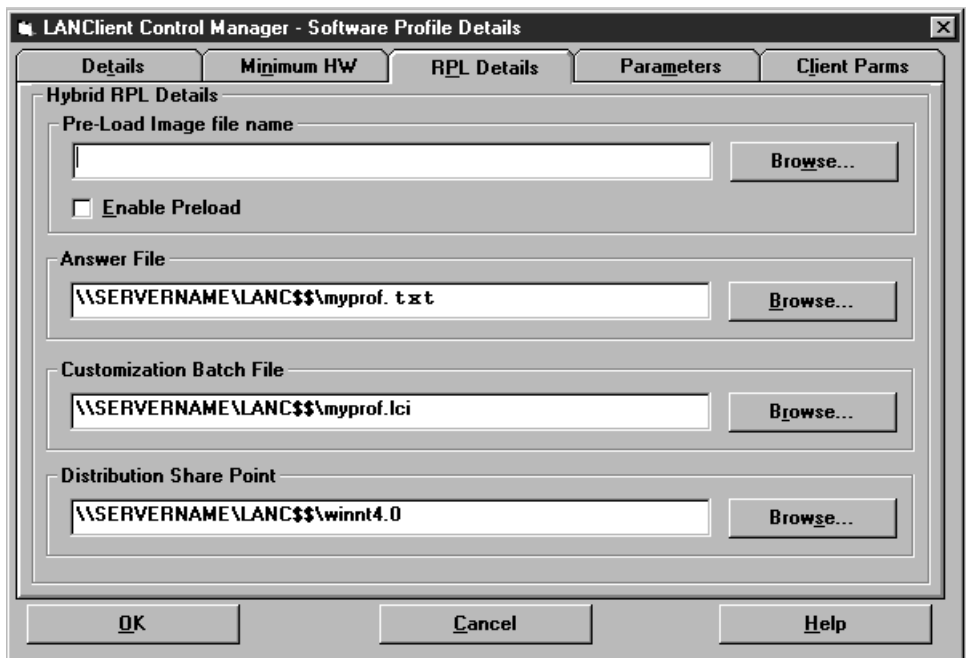
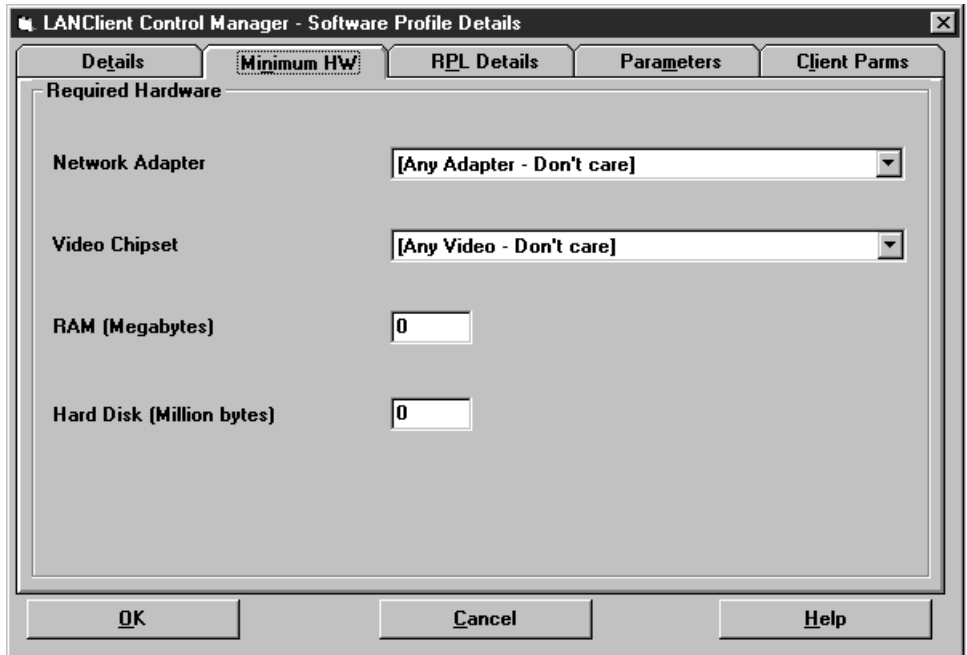
b. Save the file using a unique name and .LCI suffix. For the purpose of this discussion, we saved the customization batch file as:

```
\\servername\LANC$$\MYPROF.LCI
```

3. Create a Hybrid-NT Software Profile.

a. From LANClient Control Manager, create a new Hybrid-NT RPL Software Profile. Enter all required information in the Software Profile Details notebook. The following illustrations show an example of how to fill in each page.





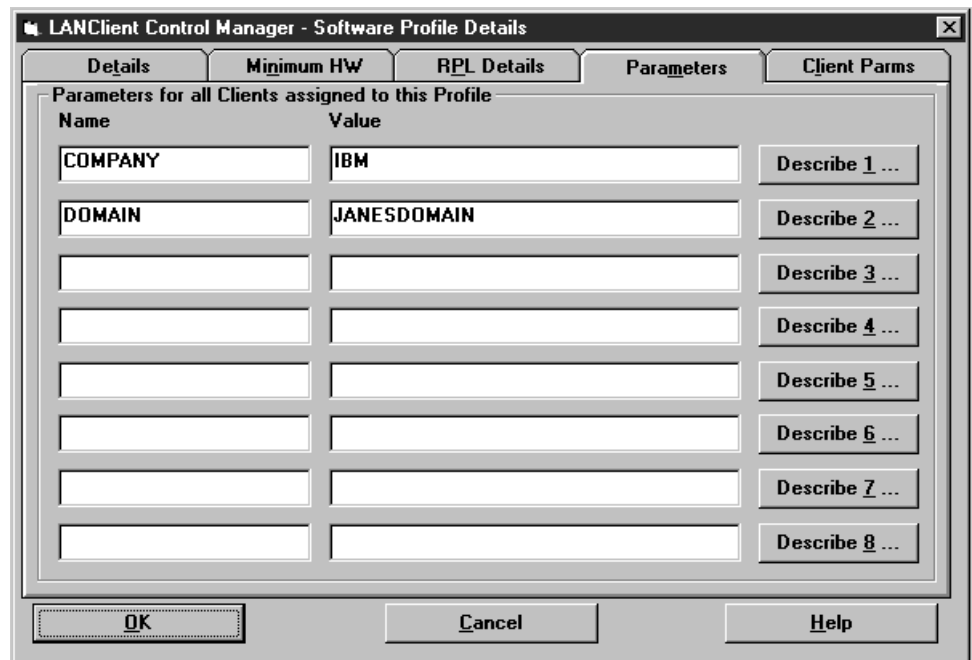
Important:

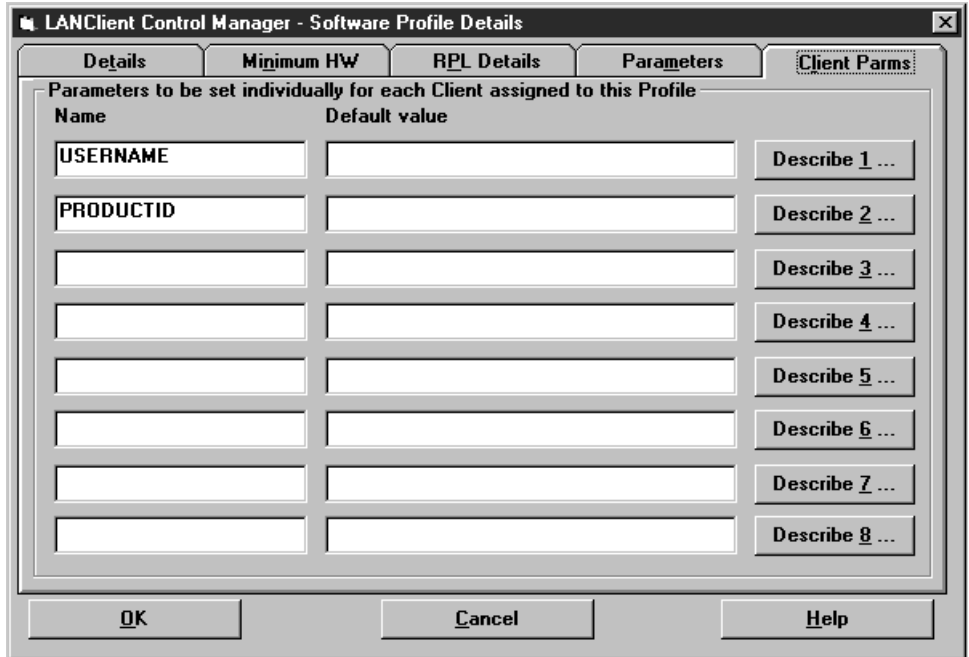
- The Distribution Sharepoint MUST ALWAYS be specified using the full UNC path:

`\\servername\LANC$$\sharepoint`

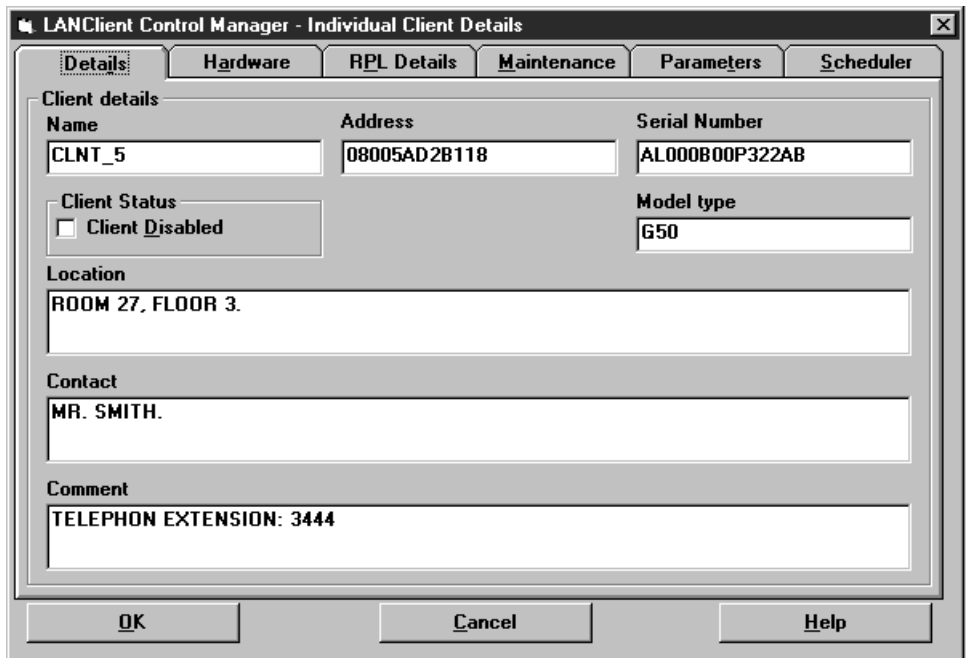
(where LANC\$\$ has been automatically mapped by LANClient Control Manager to point toward `\LCCM_install_dir\CLNTFILE`). The Sharepoint directory must always reside under the `\CLNTFILE` directory.

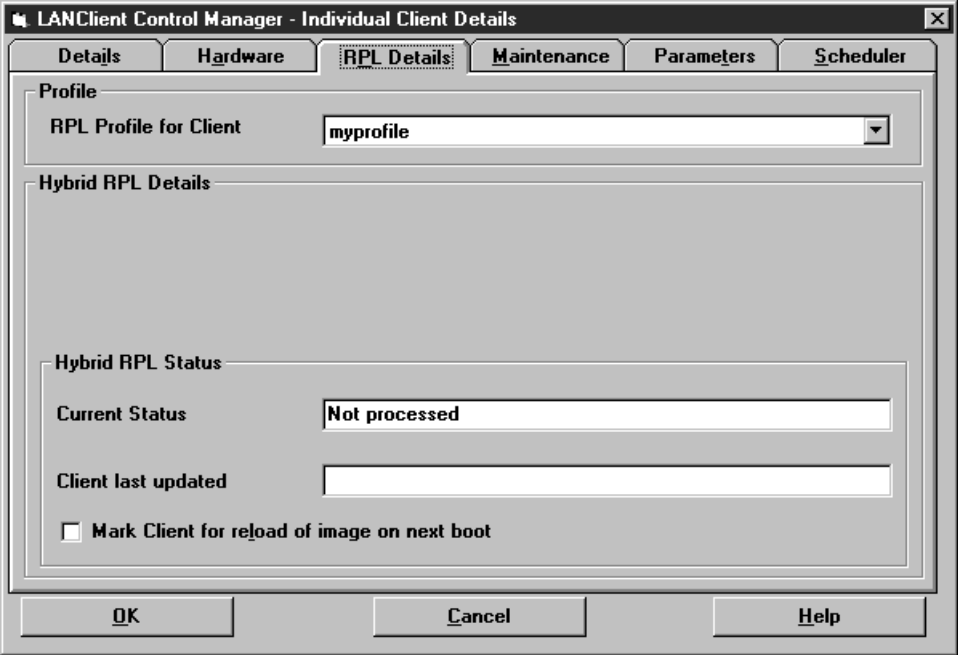
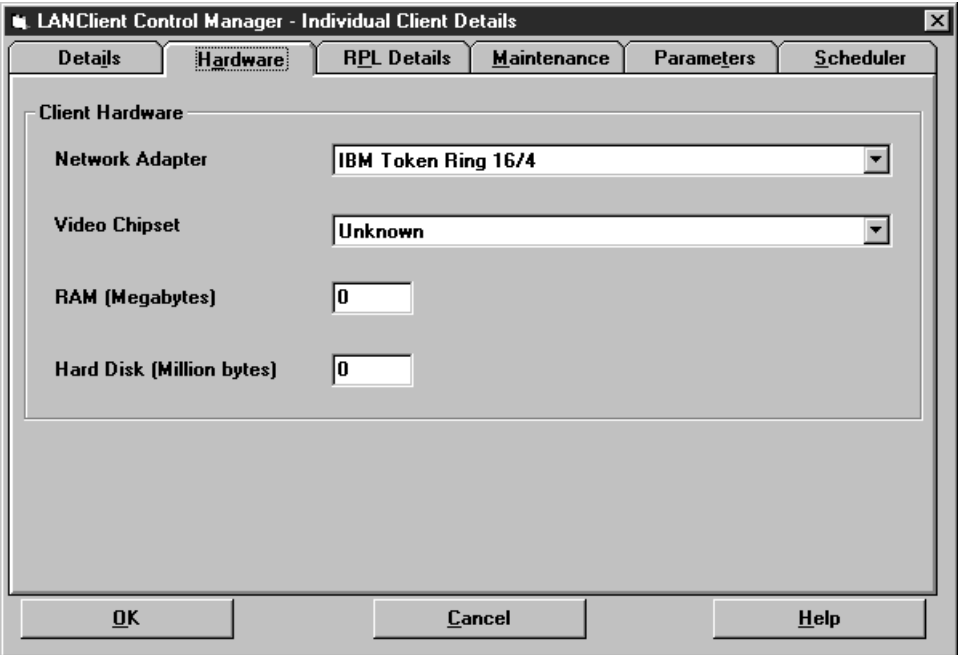
- If you intend to run LANClient Control Manager from a remote workstation, you must also use the full UNC path for specifying all other files and directories (as shown in the answer file and customization batch file paths).
- The first stage of the NT Client Workstation download involves an automatic format of the client hard disk. If you want to partition the client hard disk in any configuration other than using the entire hard disk as a single partition, you must create a preload-image batch file (.LCP file) to do this. For information on creating two or more partitions on a client hard disk prior to the formatting procedure, see “Preload-Image Batch File” on page 128. If you create a preload-image batch file, you must specify the preload-image batch file name in the Preload Image File Name field on the RPL details page of the Software Profile Details notebook. Otherwise, leave the field blank as shown in the example screen.





- b. Save this new Software Profile by clicking on OK.
4. Assign the clients to the profile.
 - a. From LANClient Control Manager, assign clients to the new Software Profile, but do not process the change.
 - b. Open the Individual Client Details notebook for each new client assigned to the profile and enter all required information on the Parameters page and Scheduler page. The following illustrations show an example of how to fill in these pages.





LANClient Control Manager - Individual Client Details

Details Hardware RPL Details Maintenance Parameters Scheduler

BIOS & CMOS Setup

Current BIOS Level

Update BIOS Level Language

Update CMOS with file

Update BIOS Admin Password

Maintenance

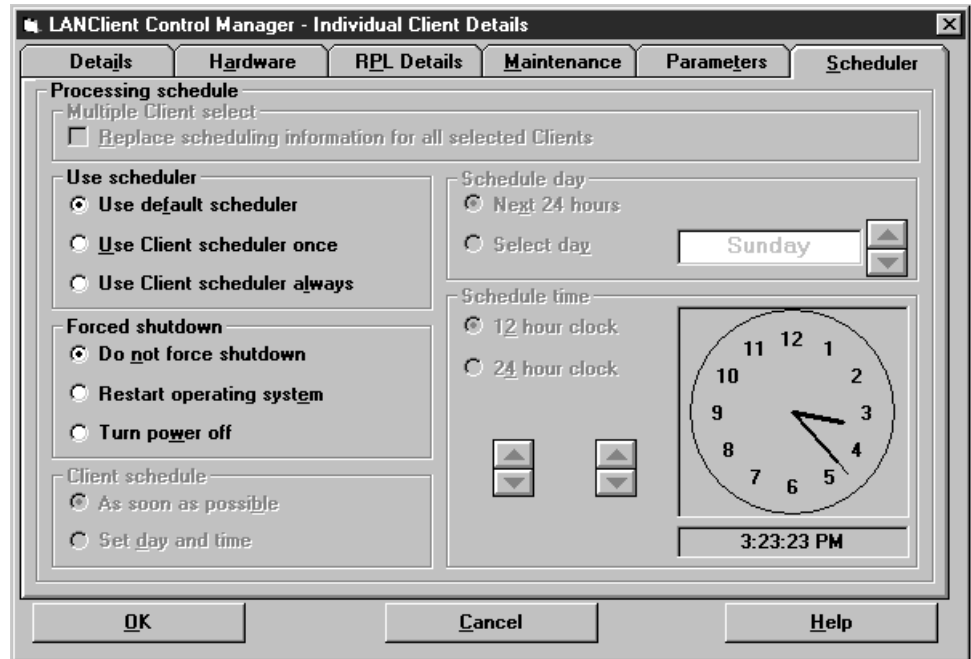
Run Maintenance file

LANClient Control Manager - Individual Client Details

Details Hardware RPL Details Maintenance Parameters Scheduler

Client parameters

Name	Value	
USERNAME	<input type="text" value="TEST_USER"/>	<input type="button" value="Describe 1 ..."/>
PRODUCID	<input type="text" value="28395-OEM-0005187-69370"/>	<input type="button" value="Describe 2 ..."/>
P3	<input type="text"/>	<input type="button" value="Describe 3 ..."/>
P4	<input type="text"/>	<input type="button" value="Describe 4 ..."/>
P5	<input type="text"/>	<input type="button" value="Describe 5 ..."/>
P6	<input type="text"/>	<input type="button" value="Describe 6 ..."/>
P7	<input type="text"/>	<input type="button" value="Describe 7 ..."/>
P8	<input type="text"/>	<input type="button" value="Describe 8 ..."/>



As you complete each notebook click on the OK button to save the changes.

5. Click on the Process button to begin downloading the Hybrid-NT RPL image to the selected clients.

The client hard disk will automatically be formatted at the first stage of this process.

The answer file (`\\servername\LANC$$\MYPROF.TXT`) is then downloaded to each client where individual client customization takes place. Our given example would customize the answer file on CLNT_5 in the following manner:

```
[UserData]
OrgName = IBM
Fullname=TEST_USER
Computername = CLNT_5
ProductId=28395-OEM-0005187-69370

[Network]
InstallAdapters = SelectedAdaptersSection
InstallProtocols = ProtocolsSection
InstallServices = ServicesSection
JoinDomain = JANESDOMAIN

[IBMTOKParamSection]
IOBaseAddress = 1
NetworkAddress = 08005AD2B118
```

The Hybrid-NT RPL Image will then be copied down to the client. After the setup process has completed the client workstation will automatically restart.

Chapter 6. Example Files

Introduction	126
Backup Batch File - DOS/Windows Image	126
Backup Batch File - Windows 95 Image	127
Preload-Image Batch File	128
Final-Image Batch File - DOS/Windows Image	129
Final-Image Batch File - Windows 95 Image	130

Introduction

The files in this section are provided as examples that can be used with LANClient Control Manager. You can also find these examples in the exercises section of this guide.

Comments are provided to help explain the overall function of each example and the specific utilities that are used. In most cases, each comment applies to the line of code that follows it. Comments are marked by REM statements.

Backup Batch File - DOS/Windows Image

Note: If you start the donor workstation from the donor boot startup image, the donor workstation's hard disk is assigned as drive D and the LCCM\CLNTFILE directory on the server is assigned as C:\LCCM. If you use a DOS boot diskette with LAN requester, you must change all occurrences of D: to C: for all activities that take place on the donor workstation and modify the path for the LANClient Control Manager directory on the server.

```
REM Your donor workstation should be connected to the
REM network and server where LANClient Control Manager
REM has been installed.
```

```
D:
CD \
```

```
REM Save the boot record to a file using DISKDOS.EXE.
```

```
\LANCLI\DISKDOS /F=D:\LANCLI\DOS7.BB /D=D /R=R
```

```
REM Change all files to be normal files with read/write
REM access using LCATTRIB.EXE. This is necessary because
REM the batch files use XCOPY to transport the files.
REM All attributes are saved to a file.
```

```
\LANCLI\LCATTRIB D:\ /A /S
```

```
REM Create the directory on the server into which you will
REM store the image. Then, change into that directory.
```

```
C:
MD \LCCM\DOS70
CD \LCCM\DOS70
```

```
REM Use XCOPY to transport the contents of the donor workstation
REM hard disk to the directory you created on the server.
```

```
XCOPY D:\*.* C:*.* /S /E
```

```
REM Restore the hidden and system file attributes on the donor
REM workstation using LCATTRIB.EXE.
```

```
D:
CD \
\LANCLI\LCATTRIB D:\ /R /S
```

Backup Batch File - Windows 95 Image

```
REM Your donor workstation should be connected to the
REM network and server where LANClient Control Manager
REM has been installed. You also must have the program
REM PKZIP.
```

```
D:
CD \
```

```
REM Save the boot record to a file using DISKDOS.EXE.
```

```
\LANCLI\DISKDOS /F=D:\LANCLI\W95BT /D=D /R=R
```

```
REM Change all files to be normal files with read/write
REM access using LCATTRIB.EXE. The attributes are saved
REM in a file.
```

```
\LANCLI\LCATTRIB D:\ /A /S
```

```
REM Save the long file names using the utility DOSLFNBK.EXE.
REM Copying files to the client is done from a DOS startup,
REM and since DOS does not recognize long file names, it is
REM necessary to back up and restore them.
```

```
\LANCLI\DOSLFNBK D:\
```

```
REM Create the directory on the server into which you will
REM store the image. Then, change to that directory.
```

```
C:
MD \LCCM\WIN95
CD \LCCM\WIN95
```

```
REM Use PKZIP (or another archive program) to transport the
REM Windows 95 image to the directory you created on the
REM Windows NT Server.
```

```
C:\LCCM\PKZIP C:\LCCM\WIN95\WIN95.ZIP -r -P D:\*.*
```

```
REM Restore the hidden and system file attributes on the
REM donor workstation using LCATTRIB.EXE.
```

```
D:
CD \
\LANCLI\LCATTRIB D:\ /R /S
```

Preload-Image Batch File

```
REM This file deletes all partitions and creates two  
REM new ones each occupying 50% of the total available  
REM hard disk space. LCBTRDEL deletes the original disk  
REM partition.
```

```
C:\LCCM\LCBTRDEL 0 /S  
C:\LCCM\INTER.EXE FDISK < C:\LCCM\LC5050FD.DAT
```

The INTER.EXE, FDISK.COM, LCBTRDEL.EXE, and sample LC5050FD.DAT files are supplied with LANClient Control Manager. These files are automatically downloaded to the client during the Hybrid RPL process. To create a single partition occupying 100% of the available disk space, substitute LCFDISK.DAT for LC5050FD.DAT. For details, see “Response Files for the FDISK Command” on page 134.

Final-Image Batch File - DOS/Windows Image

Note: During the RPL process, drive C of the client is renamed to drive D. Therefore, the following command copies the contents of the \DOS70 directory (the image) from drive C to the client's hard disk (renamed drive D during this process). The client's hard disk is only renamed as drive D temporarily. As soon as the client restarts, the client's hard disk is named drive C, as normal.

```
REM The following FORMAT command is required only if you are
REM using a preload-image batch file. Otherwise, it is
REM optional.
FORMAT D: < C:\LCCM\FORMAT.DAT
```

```
REM Transport the image from the server to the client
REM workstation.
```

```
XCOPY C:\LCCM\DOS70\IBMBIO.COM D:\
XCOPY C:\LCCM\DOS70\IBMDOS.COM D:\
XCOPY C:\LCCM\DOS70\*.* D:\ /S /E /V
```

```
REM Set the boot record at the client workstation
REM using DISKDOS.EXE.
```

```
D:
CD \
\LANCLI\DISKDOS /F=D:\LANCLI\DOS7.BB /R=W /D=D
```

```
REM Restore the hidden and system file attributes at the
REM client workstation using LCATTRIB.EXE.
```

```
\LANCLI\LCATTRIB D:\ /R /S
```

```
D:
CD \
```

```
REM If passing parameters is required, type in lines using
REM the DEDITD.EXE utility. For details, see
REM "Passing Parameters to Image Batch Files" on page 65.
REM \LANCLI\DEDITD /R /N0 D:\directory\filename dummy_1 %YourValue1%
REM \LANCLI\DEDITD /R /N0 D:\directory\filename dummy_2 %YourValue2%
REM \LANCLI\DEDITD /R /N0 D:\directory\filename dummy_3 %YourValue3%
REM \LANCLI\DEDITD /R /N0 D:\directory\filename dummy_4 %YourValue4%
```

Final-Image Batch File - Windows 95 Image

```
REM Windows NT uses PKUNZIP to transfer the file down
REM to the client workstation from the server. PKUNZIP
REM is used to unpack the "zipped" files. The following
REM FORMAT command is applicable only if you are using a
REM preload-image batch file.
FORMAT D: < C:\LCCM\FORMAT.DAT

REM Use PKUNZIP to transport and unpack the image at the
REM client workstation.

D:
CD \
C:\LCCM\PKUNZIP -d C:\LCCM\WIN95\WIN95.ZIP D:

REM Restore long file names on the client workstation
REM using DOSLFNBK.EXE.

\LANCLI\DOSLFNBK D:\ /R

REM Restore the boot record on the client workstation
REM using DISKDOS.EXE.

\LANCLI\DISKDOS /F=D:\LANCLI\W95BT /R=W /D=D

REM Restore the hidden and system attributes on the
REM client workstation using LCATTRIB.EXE.

\LANCLI\LCATTRIB D:\ /R /S

CD \WINDOWS

REM Modify the working copy of the registry file (CLONE.REG) using
REM DEDITD.EXE. The environment variables, for example %WORKGROUP%,
REM are set up as parameters in LANClient Control Manager.
REM Software profile parameters (common):

D:\LANCLI\DEDITD /R /NO CLONE.REG dummy_DomName %DOMAIN%
D:\LANCLI\DEDITD /R /NO CLONE.REG dummy_Wkgrp %WORKGROUP%
D:\LANCLI\DEDITD /R /NO CLONE.REG dummy_NameServ %NAMESERVER%
D:\LANCLI\DEDITD /R /NO CLONE.REG dummy_IPMask %IPMASK%
D:\LANCLI\DEDITD /R /NO CLONE.REG dummy_DefGate %GATEWAY%
D:\LANCLI\DEDITD /R /NO CLONE.REG dummy_RegName %REGNAME%

REM Client parameters (unique to client):

D:\LANCLI\DEDITD /R /NO CLONE.REG dummy_CName %COMPNAME%
D:\LANCLI\DEDITD /R /NO CLONE.REG dummy_IPAddr %IPADDR%
D:\LANCLI\DEDITD /R /NO CLONE.REG dummy_Hname %HOSTNAME%
D:\LANCLI\DEDITD /R /NO CLONE.REG dummy_IDNum %PRODUCTID%
D:\LANCLI\DEDITD /R /NO CLONE.REG dummy_user %USERNAME%
```

Chapter 7. Utilities Provided by LANClient Control Manager

Utilities Used in Image Batch Files	132
DEDITD	132
DISKDOS.EXE	132
DOSLFNBK.EXE	132
LCATTRIB.EXE	133
LCBTRDEL.EXE	133
Response Files for the FDISK Command	134
Response File for the FORMAT Command	135
Other Utilities	136
WATCHDOG.EXE	136
WINWAKE.EXE	136
IDVIEW.EXE	137

Utilities Used in Image Batch Files

The utilities provided in this section are found in the *LCCM_install_dir\CLNTFILE* directory.

DEDITD

Objective: To use the DEDITD.EXE utility that replaces, inserts, or appends strings within text files.

The syntax of the command is:

```
DEDITD /I[L]A | /I[L]B | /R | /AE | /AS [/Nnumber] target [search] replace
```

Options for the command are:

/IA B	Insert after, before search
/ILA B	Insert in the line after, before search
/R	Replace search with target throughout the file
/AE S	Append replace to a line at the end or start of the file
/N	Perform an action (Default is to do it once, as in /N1)
number	Perform action this number of times (/N0 inserts/replaces all occurrences)
target	Full path and name of the text file to edit
search	Optional string to search for
replace	String to substitute/append on search string

For example, the following line replaces the first 5 occurrences of the string LOADHIGH in the file C:\AUTOEXEC.BAT with the string LOAD.

```
DEDITD /R /N5 C:\AUTOEXEC.BAT LOADHIGH LOAD
```

DISKDOS.EXE

Objective: To save (read) and restore (write) the boot record using the DISKDOS utility.

The syntax of the command is:

```
DISKDOS [/V] /F=filename /D=drive [/R=R|W]
```

Options for this command are:

/V	For debug output
/F=filename	File to read/write from/to
/D=drive letter	Logical drive to read/write
/R=R W	R for read, W for Write

DOSLFNBK.EXE

Objective: To use the DOSLFNBK utility to back up and restore Windows 95 long file names so that DOS archive programs can save and restore Windows 95 installations. By default, the long file name records in the named directory and sub-directories are saved to or restored from a file called BACKUP.LFN, but another file name can be specified.

The syntax of the command is:

```
DOSLFNBK drive:directory [options]
```

Options for the command are:

/F file name	Back up to this file (default .LFN extension)
/L	List contents of backup file
/R	Restore from existing backup
/S directory	Skip directory
/V	Give running status report
/D file name	Write a detailed debugging log to file name

The /S parameter can be used if you want to back up and restore several directory trees separately. By doing this, an installation image can be divided into several separate archives that can be restored optionally.

LCATTRIB.EXE

Objective: To back up and restore hidden and system file attributes that are not transferred using (DOS) XCOPY.

LCATTRIB.EXE saves the attributes in a file and resets them. The file is saved in the present working directory. Restore them on your donor workstation after transporting the image. Restore them on the target client workstation after the image has been received.

The syntax for the command is:

```
LCATTRIB drive:directory [options]
```

Options for the command are:

directory	Full path of directory to start from
/S	Recurse sub-directories
/A	Alter file attributes
/R	Restore file attributes

For example, to back up the attributes for drive C, type:

```
LCATTRIB C: /A /S
```

To restore attributes for drive C, type:

```
LCATTRIB C: /R /S
```

LCBTRDEL.EXE

Objective: To use the LCBTRDEL.EXE utility to delete the master boot record of a physical disk drive. This action destroys all partitions on the disk and, for normal purposes, all data saved on it. Use this utility only if you want to partition the disk using FDISK.

The syntax of the command is:

```
LCBTRDEL n /S
```

where n is the disk drive number and /S is a *safety* flag to prevent accidental use.

After using LCBTRDEL.EXE, you would normally call FDISK. Since the DOS version of FDISK has no command line control, you have to prepare a response file of characters to pipe input to FDISK to run it automatically. To do this:

1. Prepare a DOS-startup diskette containing FDISK.COM and LCBTRDEL.EXE.
2. Start up a donor workstation using the diskette.
3. Run LCBTRDEL to delete the master boot record.

4. Start FDISK.
5. Using FDISK, partition the drive the way you want it, while writing down the exact sequence of keystrokes required.
6. Using a text editor that can accept non-printable ASCII characters, create a file containing the characters required. (The ESC key is 27 decimal, 1B hexadecimal, and the Enter key is 13 decimal, 0D hexadecimal.)
7. Test the file by repeating the process, but calling FDISK with your file piped into it.

Response Files for the FDISK Command

The FDISK command can be used to prepare the hard disk so that file systems can be copied to it. Two response files are provided by LANClient Control Manager to run the FDISK command unattended.

- LC5050FD.DAT contains the responses for FDISK to process a disk with no partitions defined and to create one primary and one secondary partition, each taking 50% of the disk space.

Important: If the size of the client workstation hard disk is 4 GB or greater, you cannot use LC5050FD.DAT. LC5050FD.DAT creates a primary DOS partition that is 50% of the hard disk space, and this partition cannot exceed 2 GB.

- LCFDISK.DAT contains the responses for FDISK to process a disk with no partitions defined and to create a single partition, 100% of available disk space.

Note: When using FDISK, you should start from a known disk configuration by deleting all partitions. The utility LCBTRDEL.EXE resets the hard disk to a known state by deleting the master boot record. For more details, see “LCBTRDEL.EXE” on page 133.

The following example is the sequence of responses found in the LC5050FD.DAT file:

```

ENTER      Create DOS partition
ENTER      Create Primary DOS partition
N ENTER    Do not use all disk space
50% ENTER  Use 50% of disk space
ESC        Return to FDISK Options
ENTER      Create DOS partition
2 ENTER    Create extended DOS partition
ENTER      Use maximum available space
ESC        Go to create logical DOS drives
ENTER      Use all available space
ESC        Return to FDISK options
2 ENTER    Set active partition
1 ENTER    Partition 1
ESC        Return to FDISK options

ENTER      Reboot

```

The most likely variation would be to create one or more partitions of fixed size. To do this you just have to change the text *50%* to the size of the partition required.

Note: LANClient Control Manager is currently restricted to managing client workstations with a maximum of two DOS drives. You can create more partitions, but no more than two can be primary or logical DOS drives.

If you want to create your own response file you must first go through the FDISK procedure to partition the hard disk and write down every keystroke you use. Be sure to include the final keystroke to restart the workstation. Next, use an editor to prepare a binary file with the ASCII codes for the keystroke characters. (ENTER is 13 decimal, 0D hex. ESC is 27 decimal, 1B hex.)

Response File for the FORMAT Command

The FORMAT command can be used to define areas of the hard disk which can receive and store data. A response file is provided by LANClient Control Manager to run the FORMAT command unattended.

- FORMAT.DAT contains the responses for FORMAT to create DOS FAT16 based tracks and sectors within the specified partition.

Important: The FORMAT command prompts the user to define a volume label as a part of its process. LCCM will not create a bootable partition if a volume label is named.

The following example is the sequence of responses found in the FORMAT.DAT file:

```
y ENTER      Format existing partition
ENTER       No volume label assigned
```

There are no recommended variations to this response file.

Other Utilities

The utilities provided in this section can be found in the LCCMTEMP\UTILS directory.

WATCHDOG.EXE

There might be circumstances where LANClient Control Manager clients encounter problems in completing a download from the server. Typically, this happens when a client has started to scan, and the scan is stopped at the server before the client has completed the scan process. This can also happen during the execution of a software profile download, if processing is stopped or another server error occurs. In these circumstances, the client is stopped at an error condition, and manual intervention would normally be required.

To recover from these situations, a utility is provided by LANClient Control Manager that performs a *watchdog* type function for the client.

The watchdog program reboots the client after the default time (3 minutes) has expired. The default time can be over-ridden by issuing a command within any batch file used within LANClient Control Manager.

The watchdog utility consists of two programs:

- WATCHDOG.EXE

A DOS-device driver that monitors the timer and reboots the client when the timeout expires. The driver sets an initial timeout value of 3 minutes.

- WASET.EXE

A DOS program that sets a new value in minutes for the timeout period of the watchdog timer.

To use the watchdog utility under the Windows NT platform, you must add the following line to the end of the DOSBB.CNF file for each adapter that you are using.

```
DRV BBLOCK\WATCHDOG.EXE
```

Place the WATCHDOG.EXE file in the directory *RPL*\BBLOCK, where *RPL* is the directory that the Remoteboot service was installed to.

Place the WASET.EXE file in the *RPL*\RPLFILES\BINFILES\IBMDOS7 directory.

WINWAKE.EXE

Objective: To power on clients remotely using Wake on LAN.

WINWAKE.EXE is a standalone program that uses the Wake on LAN feature to power on clients remotely. The MAC addresses (addresses of the network adapters) of the clients can be specified either on the command line or in an INI file. Either the TCP/IP protocol or the IPX protocol must be installed and configured on the local workstation for WINWAKE.EXE to work.

The syntax for the command to use MAC addresses from an INI file is:

```
WINWAKE [/D delay] /F filename
```

The syntax for the command to specify MAC addresses on the command line is:


```
WINWAKE [/D delay] address1 [address2 [...]]
```

Options for the command are:

```
address1, address2, ...  12 hexadecimal digit MAC addresses
delay                    Delay between transmission of packets in
                        milliseconds (default is 1 ms.)
filename                 INI file containing MAC addresses
```

The INI file can contain individual MAC addresses and ranges of MAC addresses. Individual MAC addresses are specified one per line, at the beginning of the line as follows:

```
001122334455
```

Ranges of MAC addresses are specified by their beginning and ending addresses as follows:

```
001122334455-001122334466
```

A sample WAKEUP.INI file is provided with WINWAKE.EXE.

IDVIEW.EXE

Objective: To identify Plug'n'Play and PCI devices on a specific client workstation.

The IDVIEW.EXE program is supplied as an aid to identifying what Plug'n'Play (PnP) and PCI devices are connected to your target client workstation. This information is useful when adding new video and network adapter details to your LANClient Control Manager system.

Copy IDVIEW.EXE to the target client workstation. Type IDVIEW at the DOS prompt. The program will detect and display any PnP or PCI devices within the client workstation.

Sample output from IDVIEW.EXE:

```
PCI Vendor/Device ID      Card Class
-----
80867030                   Host/PCI Bridge
80867000                   PCI/ISA Bridge
101300B8                   VGA Compatible Controller
```

PnP ID's Detected

```
-----
0E63E93
244D000
```

Appendix A. Notices and Trademarks

Notices

References in this publication to IBM products, programs, or services do not imply that IBM intends to make these available in all countries in which IBM operates. Any reference to an IBM product, program, or service is not intended to state or imply that only that IBM product, program, or service may be used. Subject to IBM's valid intellectual property or other legally protectable rights, any functionally equivalent product, program, or service may be used instead of the IBM product, program, or service. The evaluation and verification of operation in conjunction with other products, except those expressly designated by IBM, are the responsibility of the user.

IBM may have patents or pending patent applications covering subject matter in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to:

IBM Director of Licensing
IBM Corporation
500 Columbus Avenue
Thornwood, NY 10594
U.S.A.

Licensees of this program who wish to have information about it for the purpose of enabling: (i) the exchange of information between independently created programs and other programs (including this one) and (ii) the mutual use of the information which has been exchanged, should contact IBM Corporation, Department 80D, P.O. Box 12195, 3039 Cornwallis, Research Triangle Park, NC 27709, U.S.A. Such information may be available, subject to appropriate terms and conditions, including in some cases, payment of a fee.

Trademarks

The following terms are trademarks of the IBM Corporation in the United States or other countries or both:

IBM	Streamer
NetFinity	Wake on LAN
OS/2	

The following terms are trademarks of other companies:

IPX	Novell
Lotus	Lotus Development Corporation
PKZIP	PKWARE, Inc.
SmartSuite	Lotus Development Corporation
TME 10	Tivoli Systems Inc.

Microsoft, Windows, Windows NT, and MS are trademarks or registered trademarks of Microsoft Corporation.

Other company, product, and service names may be trademarks or service marks of others.

Index

A

- adding clients to the database
 - manually 59
 - scanning 58
- administrator password, client
 - See* BIOS administrator password, client
- assigning clients
 - BIOS update image 78
 - CMOS settings image 79
 - maintenance image 80
 - to a software profile 74
- assistance, online 54

B

- basic operation 4
- batch files
 - defined 8
 - types 8
 - using 5, 8
- BIOS administrator password, client
 - changing 78, 82
 - deleting 78
 - setting default 25
- BIOS update image
 - assigning to a client 78
 - creating 68
 - defined 7
- BIOS, client
 - changing administrator password 82
 - setting default administrator password 25
 - updating 78

C

- client address 33
- CMOS update image
 - assigning to a client 79
 - creating 70
 - defined 8
- CMOS, updating the client 79
- colors of clients (within the interface) 21
- commands provided by LANClient Control Manager 131
- concepts 7
- creating
 - BIOS update image 68
 - CMOS settings image 70
 - donor workstation startup image 63
 - Hybrid RPL image 62
 - Hybrid-NT RPL image 67
 - standard RPL image 61

D

- DEDITD command, defined 132
- default settings
 - See* setting defaults
- Defaults notebook
 - accessing 24
 - defined 24
 - General page 25
 - Processing page 26, 28
 - Scheduler page 29
 - using 24
- deleting a client 75
- details of a client 32
- device drivers for new network adapters 84
- disabling a client 75
- DISKDOS command, defined 132
- donor workstations
 - creating and assigning a startup image 63
 - defined 9
 - using 9, 62
- DOSLFNBK command, defined 132
- drive mapping 9
- dual startup sequence 81

E

- editing
 - existing client 31, 77
 - existing software profile 45
- end-user prompts
 - answering 58
 - setting defaults 28
- environment for Hybrid RPL
 - Windows NT Server 6
- error messages
 - BIOS update failure 79
 - CMOS update failure 79
 - Windows NT Server 22
- example files
 - backup batch, for DOS/Windows image 126
 - backup batch, for Windows 95 image 127
 - final-image batch file - DOS/Windows image 129
 - final-image batch file - Windows 95 image 130
 - preload-image batch file 128
 - response file for FDISK 134
 - response file for FORMAT 135
- exiting LANClient Control Manager 17

F

- features 2
- final-image batch file
 - entering for the software profile 48
 - example for DOS/Windows 129
 - example for Windows 95 130
 - file extension 8
- forced shutdown of a client 43
- forcing an image reload 77
- FORMAT.DAT response file for FORMAT 135

H

- hardware, installed in a client 35
- help, online 54
- Hybrid RPL
 - advantages of 5
 - creating an image 62
 - defined 4
 - environment downloaded to client 6
 - images, defined 7
 - training exercises 90

I

- IDVIEW.EXE 137
- images
 - creating a Hybrid RPL 62
 - creating a Hybrid-NT RPL 67
 - creating a standard RPL 61
 - creating, BIOS update 68
 - creating, CMOS settings 70
 - defined 7
 - DOS/Windows 91
 - forcing a reload 77
 - maintenance 80
 - transporting, alternative methods 64
 - types 7
 - Windows 95 96
 - Windows NT Workstation 103
- Individual Client Details notebook
 - accessing 31
 - defined 31
 - Details page 32
 - Hardware page 35
 - Maintenance page 38
 - Parameters page 40
 - RPL Details page 36
 - Scheduler page 42
 - using 4, 31
- Installation/Maintenance window
 - defined 20
 - selecting clients within 21
 - using 20

- installing
 - device drivers for new network adapters 84
 - LANClient Control Manager 12
 - new client workstations 56
- interface
 - components of 6
 - Defaults notebook 24
 - Individual Client Details notebook 31
 - Installation/Maintenance window 20
 - managing clients 74
 - Progress and Errors window - Windows NT Server 23
 - recognizing clients 21
 - selecting clients 21
 - Software Profile Details notebook 45

L

- LC5050FD.DAT response file for FDISK 134
- LCATTRIB command, defined 133
- LCBTRDEL command, defined 133
- LCFDISK.DAT response file for FDISK 134
- licenses v, 90

M

- maintenance batch file
 - file extension 9
 - running 39
- mismatches, showing client 75
- modifying
 - existing client 77
 - existing software profile 45

N

- NetFinity
 - enabling for a client 27
 - setting password for 28
 - setting user ID 28
- network adapters, installing device drivers 84
- notices 139

O

- online help 54
- overview 2

P

- parameters
 - exceptions 67
 - passing 65
- personality batch file
- personalization
 - client parameters, software profile details 53
 - entering parameters 40

- preload-image batch file
 - entering for the software profile 48
 - example 128
 - file extension 8
- processing changes
 - default scheduler 29
 - immediate 22
 - scheduled 22
- profile
 - See* software profile
- Progress and Errors window
 - using, Windows NT Server 23
- prompts, end-user
 - See* end-user prompts

Q

- quitting LANClient Control Manager 17

R

- recognizing clients 21
- remote program load (RPL), defined 4
- response file for FDISK 134
- response file for FORMAT 135
- restart options
 - allowing client hard disk startup 81
 - default client restart 27
 - dual startup sequence 81
- running the program from another workstation 16

S

- saving changes 17
- scan
 - defined 4
 - starting 56, 58
 - stopping 59
- scheduler
 - default settings 29
 - individual client settings 42
- searching for specific clients 76
- selecting
 - clients 21
 - how clients are displayed 76
- setting defaults
 - administrator password 25
 - client name 25
 - client restart 27
 - Hybrid RPL process limits 26
 - prior to scanning 57
 - RPL server name 26
 - scheduler 29
 - text editor 26
 - user prompts 28

- settings, client workstation
 - dual startup sequence 81
 - local hard disk startup 81
- showing mismatches, client 75
- software profile
 - assigning clients to 74
 - creating 72
 - defined 10
 - deleting 73
 - editing an existing 72
 - entering details of 46
 - forcing an image reload 77
 - managing 72
 - minimum hardware required for 47
 - suggested names 10
 - unassigning clients from 75
 - viewing 72
 - Windows NT Server 36
- Software Profile Details notebook
 - accessing 45
 - Client Parameters page 53
 - defined 45
 - Details page 46
 - Minimum Hardware page 47
 - Parameters page 52
 - RPL Details page 48
 - using 45
- standard RPL
 - creating an image 61
 - defined 4
 - images, defined 7
- starting
 - from another workstation 16
 - LANClient Control Manager 15
- startup sequence, dual 81

T

- terms 7
- TME 10 NetFinity
 - See* NetFinity
- trademarks 139
- training exercises 90
- transporting images, alternative methods 64

U

- unassigning clients from software profiles 75
- uninstalling LANClient Control Manager 18
- utilities provided by LANClient Control Manager 131

W

- Wake on LAN 27, 43
- WATCHDOG.EXE 136

- Windows NT server
 - creating a standard RPL image 61
 - environment downloaded to client 6
 - error messages 22
 - installing a DOS image 91
 - installing a DOS/Windows image 91
 - installing a Windows 95 image 96
 - installing device drivers for new network adapters 84
 - installing LANClient Control Manager 12
 - installing Windows NT Workstation image 103
 - Progress and Errors window 23
 - recognizing clients 21
 - running the program from another workstation 16
 - setting up the software profile 36
 - software profile details 46
 - starting LANClient Control Manager 15
 - training exercises 90
 - uninstalling LANClient Control Manager 18
- WINWAKE.EXE 136



G06J-0520-0

