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IBM PC LAN PROGRAM 1.3: A GUIDE TO INSTALLATION AND USE IN A WORKING ENVIRONMENT

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ABSTRACT

This document explains how to install and use IBM PC LAN Program version 1.30, in a working LAN environment. Because the emphasis is on practical advice, the bulletin also covers installation and use of IBM PC LAN Support Program v1.02, and gives examples of installation of applications under the PC LAN Program 1.3.

Also included is a complete set of practical exercises, for use in an internal or customer workshop on PCLP 1.3.

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Acknowlegements

Preface

The information given in this bulletin is based on our experience with PCLP 1.3 on different types of Local Area Network. Everything that we describe in detail we have tested, and we have tried to to concentrate on the practical side of installing and using this product, paying attention to the very real issues of memory constraints and coexistence with other applications. We hope this document will provide all the information you need to understand, set up and run a LAN under PCLP 1.3.

Class exercises are provided in the appendix, with answers. These have been used in IBM internal specialist workshops, and can be incorporated into an IBM internal or customer workshop on PCLP 1.3.

Purpose of this Document

The purpose of this document is to provide comprehensive practical advice and guidance on all aspects of using and installing PCLP 1.3. It is intended to be the PCLP 1.3 handbook for anyone involved in supporting or implementing the product.

Audience and Readers

This document is written to address directly the LAN administrator who will be installing and running a LAN under PCLP 1.3. It is aimed at the IBM customer who will be installing or maintaining a LAN with PCLP 1.3, and at IBM Systems Engineers who will be installing or supporting the product. It should also be useful for any customer or IBM Professional who wishes to gain an understanding of what PCLP 1.3 is all about. This document is thus designed to be read by:

- IBM Customers involved in installation of PCLP 1.3.

- IBM Customers involved in maintaining a LAN under PCLP 1.3

- IBM Field SEs with LAN accounts

- Workstation, LAN and Office Systems Specialist SEs

- Workstation, LAN and Office Systems Technical Support

- Dealer Marketing and Technical Support

It is assumed that these readers have the following:

- an understanding of IBM Local Area Networks

- a working knowledge of IBM PC LAN Program

- experience with using DOS 3.3

Related Publications

The following publications may be useful as complements to this bulletin:

- PC/DOS to OS/2 Migration Red Guide (GG24-3263-00)
- LAN Support Program 1.02 documentation (on program diskette)
- IBM NETBIOS Application Development Guide (S68X-2270)
- Remote Program Load User's Guide (provided with TR RPL EPROM)
- Personal System/2 Technical Reference (68X2201)
- Token Ring Technical Reference (69X7830)

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List of Illustrations

1.0 Introduction

1.1 Structure of this Document

This document falls naturally into three parts:

- The first part, (Chapters 1 to 4) introduces you to the concepts of PCLP 1.3, and covers set up prerequisites in terms of hardware and LAN Support Program.

- In the middle section (Ch.5 - 6) we take you through installing the software on different configurations, and using it to define resources and users on the LAN.

- The remaining chapters concentrate on practical use of PCLP 1.3, both from the user and administrative perspectives. Here you will find guidance to using the menus and working with other applications. You will also find detailed information on memory matters, and a summary look at migration from PCLP 1.3.

The appendix of this book contains a set of class practical exercises, planning worksheets a reader's comments form.

1.2 Chapter Content

The document is organized into chapters as follows:

1. "Introduction" explains the structure of this document and offers a ded brief overview of PCLP 1.3 Base and Extended Services.

2. "The Philosophy of PCLP 1.3 Extended Services" explains each term used in this environment, and attempts to present the "philosophy" behind PCLP 1.3, to set the reader's expectations for the way in which the program works.

3. "Specifications" gives information about supported hardware configurations, including devices, and touches on interrupt considerations. Sample hardware and software configurations for running PCLP 1.3 are included.

4. "IBM LAN Adapter Drivers" explains in detail the function and contents of each of the modules in the LAN Support Program 1.02. It guides you through installation and customizing of the program, and contains a section on tailoring NETBIOS parameters to support certain applications and environments. Examples of configuring LSP to support 3270 Communications are given. PC Network Protocol Driver is touched upon.

5. "Installing PCLP 1.3" takes you through installation of the software to set up different types of server and workstation. It includes a detailed section on setting up and using Remote Program Load, and another on tailoring NET START parameters. This will be extremely useful to anyone who wants to understand what all the parameters actually mean, and how to customise them sensibly.

6. "Defining your LAN Environment" follows the steps the LAN administrator has to go through after installing the program itself, to prepare the LAN for use. This process involves a series of definitions, all of which are created by the administrator through the PCLP menus, and are covered in this chapter.

7. "Using the LAN under Extended Services" approaches the LAN first from the perspective of a regular user, to clarify what exactly can be done from the user menus and how. It contains these guidelines also from the perspective of an administrator maintaining the LAN, and includes a separate section which looks specifically at LAN Messaging under 1.3, in terms of set up and use. Anyone who fits into one of these categories should read this section first; afterwards you will understand why!

8. "Working with Applications" takes a practical look at how to set up different types of application for use on the PCLP 1.3 LAN. It includes a specific section on installing and using DisplayWrite 4 in this environment, and another on installing the IBM Compilers.

9. "Working with Communications" follows on from the previous chapter, with particular emphasis on communications applications. It includes detailed advice on installing 3270 Emulation v3.0 in the PCLP 1.3 environment, including the set up of a combined 3270 Gateway and Server. At this time there is little information provided on other communications, but we hope these will be included in updated versions of this guide. We have not included details on products we were unable to test.

10. "Migration" provides a checklist of prerequisites and decision points when migrating from PCLP 1.2 to 1.3, and includes examples of typical autoexec.bat and config.sys files in PCLP 1.3. Migration from PCLP 1.3 to OS/2 LAN Server is covered in another red bulletin written at the same time as this one. (PC/DOS to OS/2 LAN Migration and Coexistence, no. GG24-3263-00).

11. "Memory Requirements" gives a detailed breakdown of the memory consumption for each type of LAN configuration, including that taken up by DOS, the LAN drivers and PCLP 1.3 itself. These figures are based on tests using "sysmap". Typical configurations with memory requirements are also given.

12. "Appendix" includes the set of class exercises as mentioned earlier. The exercises here were developed from the same tests as the examples given in the chapters on Applications and Communications and thus there will inevitably be overlap in the contents. They are designed to be pulled out and used as the practical part of a workshop on PCLP 1.3.

1.3 IBM PC LAN Program 1.3 Overview

IBM PCLP 1.3 provides us with a very different product from its predecessor, PCLP 1.2. The most significant features of PCLP 1.3 are as follows:

- User logon independent of workstation.

- Friendly front-end for users

- Central management of LAN resources and users by LAN Administrator

- Security for user access to data and resources

- Remote program load support for medialess or other workstations

PCLP 1.3 can be used at two different levels; Base Services, or Extended Services.

1.3.1 Base Services

Base Services provides the same functions as PCLP 1.2, with the following improvements:

- Support for future release of DOS

- 3363 Optical Disk Drive Support

- Support for optional form feed on printer (also in v 1.23)

- Performance Enhancements

- Option for significant reduction of memory requirements for server and messenger configurations

Under Base Services the LAN consists of servers and workstations. Servers share data, applications and printers with workstations, through the use of NET SHARE and NET USE commands or through the PCLP menus. These are identical to the PCLP 1.2 menus.

A server does not technically need to be dedicated, and subject to memory restrictions, it can be used to run other applications.
A user always uses the same workstation under Base Services, and does not need to "logon" to the LAN. You can use the LAN in two ways, from the DOS command line or through the menus.
Resources are shared informally between stations, without any central control. This enables much flexibility and rather less security.
PCLP 1.3 Base Services looks and works exactly the same as PCLP 1.2; assuming you are already at least vaguely acquainted with version 1.2, we will move on to the mainstay of PCLP 1.3, which is called Extended Services.

1.3.2 Extended Services

This is the main part of PCLP 1.3, which you select at installation time. Extended Services introduces new concepts and services not available with PCLP 1.2 or Base Services, such as:

- Administrator Services

- User Services

- Remote Program Load Services

- Useability Services (such as HELP)

It promotes the idea of users having transparent access to LAN resources regardless of where either are located.

User of the LAN have user ids and optional passwords, to log on to the LAN from any Extended Services Workstation. From any workstation they will access their own personalised front end menu, from which they can use the resources allocated to them.

The validation and establishment of sessions between users and resources on the LAN is done by a special server which is called a "Domain Controller". This machine holds all the definitions on users and their access to resources, as well as the location and nature of all the resources themselves. All this information is to be managed by a specially authorised person, called the LAN Administrator. This person has an administrator sign-on which allows him/her to define users, resources and the relationship between them.

For those of us used to the machine-bound world of PCLP 1.2, this Extended Services introduces us to some new ideas and terminology. This is covered in the next Chapter, "The Philosophy of PC LAN 1.3", which we suggest you read before anything else in this guide.

2.0 The Philosophy of PC LAN 1.3 Extended Services

The world of PC LAN 1.3 Extended Services is orientated towards users, not machines. The idea behind it is that a user can log on to any workstation with his/her user i.d. and password, and do his/her work, as with a host system from any terminal. Because such a structure requires centrally held programs and data, it pushes us towards an environment servers with large disk storage and workstations requiring very little. The third point about the philosophy of 1.3 is that it distinguishes between two kinds of users; the 'normal' and the administrator. The added powers of the administrator are significant and should be treated with respect; LAN 1.3 expects to see many normal users and very few administrators.

2.1 The Concepts of PC LAN 1.3 Extended Services

Before planning, migrating or installing your LAN, you will need to understand the concepts with which you will be working. These are:

- Domain

- Domain Controller

- Servers

- Workstations

- Remote Program Load Workstations

- Users and User i.d.'s

- Passwords

- Internal and External Resources

- Filesets

- Application Selector

While some of these may be familiar to you, others may sound rather strange; here we introduce them to you as a basis for details to follow later in this guide.

2.1.1 Domain

A domain is a self-contained group of servers and defined users within a LAN. An organisation with different departments can divide the LAN into logical work groups by defining one domain for each.

2.1.2 Domain Controller

This is the primary server in a domain, and holds definition information on all the users, applications, and other resources within its domain. It also coordinates its users and resources as one single set, regardless of where they are located. The machine id of the domain controller is also the name of the domain, to which the users are defined. Since a domain controller is configured as a server with extra responsibilities, it can double up as a regular server on its domain. Only an administrator can sign on to a domain controller, but an administrator can sign on anywhere to manage the domain controller information. The domain controller must be the first machine to be booted up on the domain, in order for the resources on its servers to be made available.

2.1.3 Servers

In each domain there may be one or more servers. These may be serving out disk resources and applications, thus referred to as program servers; they may be printer and/or Remote Program Load servers, remotely booting up RPL workstations as assigned to them by the system administrator. Each server is defined in the domain controller, and only an administrator belonging to the home domain can log on to one. Although a user's applications and directories may be physically located on multiple servers, s/he has no need to know where; the connection between server resources and users is made always by the domain controller. Although technically a server does not have to be dedicated, memory requirements limit what can be done with such a configuration. In most cases an administrator can at least log on and carry out administrative LAN tasks; alternatively on a small LAN, a server can still double up as a 3270 gateway , as it could with PC LAN 1.2.

2.1.4 Workstations

While every user of the LAN is defined to a domain, the workstation machines themselves are not. When you logon from a workstation to your domain, your domain controller looks to your user id for validation; it has no interest in the machine you are working on, unless it is a server. The only machine ids that are defined in the domain controller are those of its servers, and those of RPL workstations for assignment to an RPL server.

Under PCLP 1.3 Extended Services, workstations can be configured as redirectors or receivers; the messenger configuration is only valid under Base Services. Receivers can send and receive messages using the LAN Message Facility as in 1.2; redirectors can only send. Because this configuration is determined in the machine's NET START parameters, a user's message function is not related to user id, but to the machine being used. Thus it makes sense in an installation to set a standard configuration for all workstations; to use the LAN Messaging sensibly everyone needs to receive as well as send. If you will not be using LAN Messaging at all, the redirector configuration has the lowest memory overhead.

2.1.5 Remote Program Load Workstations

A workstation that is remote program loaded means that its initial boot up files are sent to it from a remote machine, without it reading from or needing to have its own disk media. Thus medialess workstations can be booted up onto the LAN by merely being switched on, and users do not have to shuffle with diskettes in order to get a diskette based workstation into action. When it is switched on, each RPL workstation requests its bootup image file from its defined RPL server, who sends it immediately. To set this up you need do little more than follow the PCLP menus; all that you need to do is detailed in the RPL section of Chapter 6 , "PCLP 1.3 Installation".

```
DOMAIN
  ┌─────────────┐   ┌─────────────┐   ┌─────────────┐
  │  IBM 3812   ├───┤   SERVER    ├───┤   1-2-3     │
  └─────────────┘   │             ├───┤  Plan Data  │
                    │ FIN. PLANNING├───┤ Plan Result │
                    └─────────────┘   └─────────────┘

                        ┌─────────────┐   ┌──────────────────┐
                        │ RIPL Image  ├───┤     SERVER       │
                        │    ABC      ├───┤                  │
                        │    XYZ      ├───┤ DOMAIN CONTROLLER │
                        └─────────────┘   ├──────────────────┤
                                          │ DOMAIN DEFINITIONS│
                                          └──────────────────┘

  ┌─────────────┐   ┌─────────────┐   ┌─────────────┐
  │  IBM 5202   ├───┤   SERVER    ├───┤    DW 4     │
  └─────────────┘   │             ├───┤  Documents  │
                    │ WORD PROC.  ├───┤ Address DB  │
                    └─────────────┘   └─────────────┘
```

Figure 1. Example of a Domain
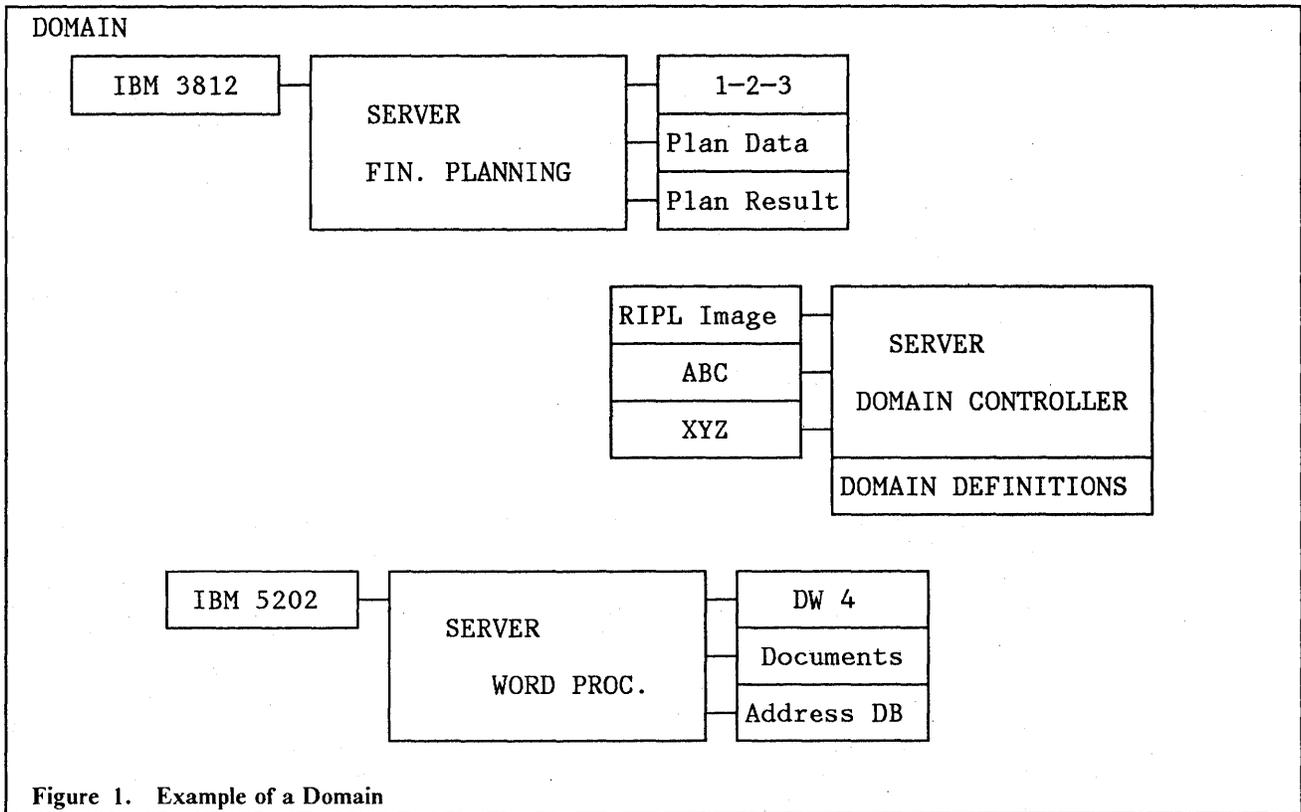
2.1.6 System Administrator

Each domain must have a system administrator. With his/her special administrator sign-on, this person defines which users can logon to the domain, how network resources are to be shared, to whom, and with what level of access. This person can manage the LAN in this way in addition to carrying out their own user tasks; s/he can log on to the domain controller from any workstation or server in the domain. The idea is to appoint one administrator per domain; the system does not stop you creating more than this, but will prevent one administrator from going into any of the administration services while another is already there.

2.1.7 Users and User id's

As far as PCLP 1.3 is concerned, a "user" signs on to the LAN to do his applications and everyday tasks. All the applications reside on servers on the LAN, on a shared or private directory, so that the user can call them up from any workstation. While this approach moves us away from locally held programs and data, there are ways round it for a user who wants to be bound to a specific machine. These are detailed in Chapter 9, "Working with Applications".

At the logon screen, the user is prompted for a user id and domain id, for which there may be a default which can be left or overwritten. His/her password is then asked for, unless the user has been defined to bypass this by the system administrator. If the domain specified recognises the user id and password as defined to it, the user is logged on; otherwise not. A user can sign on to his/her home domain from any workstation on the LAN, except from a server, which is reserved for administrator use only. A user can also be defined to more than one domain, but can only be logged on to one at a time, since the active user id must be unique in the whole LAN.

NOTE: Some PCLP 1.3 documentation refers to "users with administrative status", to signify administrators. In an attempt to avoid ambiguity in this guide, we will always refer to users and administrator as users and administrator, although of course an administrator may be both!

2.1.8 Passwords

In PCLP 1.3 Extended Services, the only passwords used are those non-displayed at logon time. When the system administrator defines a new user to a domain, the use of a password is offered as an option. Once the user has been assigned a password, s/he can change it in user services.

Security of the domain's resources is controlled through the administrator's assignment of specific resources to individual users; the only time password access to resources might still be used is in the accessing of a resource outside the user's domain; which leads us into the concept of Internal and External Resources.

2.1.9 Internal Resources

These are resources which are defined and controlled within the domain. They may be directories containing programs or data, or printers which physically exist on any of the servers defined in the domain. To give a user access to these resources, the system administrator defines them in the domain controller, and can then assign the user to each one individually, specifying read only or update access for each resource-user relationship. This is a great improvement from the common access rights on resources in 1.2.

2.1.10 External Resources

These exist outside the home domain, whether that be on a server in another domain, a Base Services server, an OS/2 LAN server or a PCLP 1.2 server. They are controlled from outside the domain, but are also defined on the home domain controller, as an "external" resource. The sharing of resources across domains moves us back into the realm of PCLP 1.2 and Base Services, since the resource to be shared requires the appropriate NET SHARE command, and the users need corresponding NET USE commands to be issued. However, all this is done on the user's behalf in Extended Services, and is issued in system files into which s/he cannot peek. External resources are explained in more detail in Chapter 6, "PC LAN Program 1.3 Installation." on page 41.

2.1.11 Filesets

A "fileset" is a name used to identify a disk, directory or subdirectory, including all program and/or data files under it. Before allowing application access to users, the system administrator needs to define the relevant filesets, and then assign them to individual users. With DW4 for example, the program may be in one subdirectory, and the library of shell documents in another; by identifying each of these as a fileset and giving users specific access rights to them, the system administrator can give users controlled and transparent access to the programs and data they need.

Filesets can exist on different servers, even within the same application, but are still defined and assigned in the domain controller. Thus a user has no need to know where the filesets are located, since the system takes care of that for him/her. Note that a single fileset must exist completely on a single server.

Filesets are defined to be "static" or "dynamic"; static filesets are assigned to users when they log on, while dynamic ones are only assigned on request. Points to consider in deciding which is best for your environment are raised in Chapter 6, "PC LAN Program 1.3 Installation." on page 41.

2.1.12 Application Selector

When you sign on to the LAN as a user or administrator, you will come directly into the full screen menu affectionately known as the Application Selector. As a user, from this menu you have options to logoff, exit to DOS, perform LAN Message functions, read the tutorial "Overview", or delve into "PCLP" where further menus await you. Once applications have been added, they will appear as options on this menu also, so that users can go straight into them without having to go via DOS. Similarly, ending an application will bring the user back to this menu. In this sense the Application Selector performs a similar function to Fixed Disk Organiser, and to all intents and purposes replaces it.

The main difference between these two front end menus is that while FDO was often used to access applications on a user's local fixed disk, the Application Selector is a LAN menu and assumes that an application will be accessed across the LAN from a server. As we have said, there are ways of getting round this which we will explain, but it suggests again the direction of PCLP 1.3, towards an environment with resources and storage held almost entirely on servers and not at all on workstations.

As an administrator you will have an extra option on your Application Selector, which takes you into Administrator Services. It is through the screens behind this that you will perform most of your administrative tasks, through various panels, action bars, and pull-down menu windows. These apparently conform to IBM Systems Application Architecture standards.

3.0 Specifications

In this chapter we will look at the hardware and software requirements for running PCLP 1.3.

3.1 *Hardware*

3.1.1 Supported Machines, Adapters and Devices.

We will start with the PCs and PS/2s, and then go on to adapters and some of the most common devices (Displays,Printers).

3.1.2 Personal Computers and Personal System/2s

You can use one or more of the following IBM Personal Computers.

- IBM Personal Computer
- IBM Personal Computer XT
- IBM Personal Computer XT/286
- IBM Personal Computer AT (Models 068, 099, 329, 339)
- IBM Personal Computer AT/370 (PC Network only)
- IBM 3270-PC AT/G
- IBM 3270-PC AT/GX
- IBM Personal System/2 Model 25 (8525-LS-L01, 8525-LS-L04)
- IBM Personal System/2 Model 30 (8530-002, 8530-021)
- IBM Personal System/2 Model 50 (8550-021, 8550-031, 8550-061)
- IBM Personal System/2 Model 60 (8560-041, 8560-071)
- IBM Personal System/2 Model 70 (8570-E61, 8570-121, 8570-A21)
- IBM Personal System/2 Model 80 (8580-041, 8580-071, 8580-111, 8580-311)

3.1.3 Displays

The following displays can be connected to the computers mentioned above.

- Monochrone Display (5151)
- Colour Display (5153)
- Enhanced Colour Display (5154)
- 3270PC Colour Display (5272)
- IBM Personal System/2 Monochrome Display 12″ (8503)
- IBM Personal System/2 Colour Display 14″ (8512)
- IBM Personal System/2 colour Display 12″ (8513)
- IBM Personal System/2 colour Display 16″ (8514)

Note that you can only use IBM Personal System/2 Displays on an IBM Personal System/2 unit.

In some countries a special display-adapter (No.07F4341 #4341) has been announced. This adapter enables you to use IBM Personal System/2 Displays on IBM Personal Computers in VGA-mode.

3.1.4 Adapters

The following adapters are supported:

- Enhanced Colour Display Adapter
- Display Adapter (8514/A)
- PC Network Baseband

  - IBM PC Network Baseband Adapter

  - IBM PC Network Baseband Adapter/A

- PC Network Broadband

  - IBM PC Network Adapter

  - IBM PC Network Adapter II

  - IBM PC Network Adapter/A

  - IBM PC Network Adapter II - Frequency 2

  - IBM PC Network Adapter II - Frequency 3

  - IBM PC Network Adapter/A - Frequency 2

  - IBM PC Network Adapter/A - Frequency 3

- PC Token Ring Network

  - IBM Token-Ring Network Adapter/A

  - IBM Token-Ring Network PC Adapter

  - IBM Token-Ring Network PC Adapter II

  - IBM Token-Ring Network Trace & Performance PC Adapter II

  - IBM Token-Ring Network Trace & Performance PC Adapter/A

- SDLC Communications Adapter
- Multi-Protocol Adapter/A
- 3278/9 Emulation Adapter
- IBM 3270 Connection (Personal System/2)

All adapters which end in "/A", will fit into an IBM Personal System/2 Model 8550 and above.
Also IBM Personal System/2 Pointing Device and Optical disk Drive (3363) can be used.

3.1.5 Printers

The following printers are supported:

- IBM Graphics Printer (5152)
- IBM Color Printer (5182)
- IBM Proprinter II (4201)
- IBM Proprinter XL (4202)
- IBM Jet Color Printer (3852-2)
- IBM Quietwriter (5201)
- IBM Quietwriter III (5202)

- IBM Wheelprinter (5216)
- IBM Wheelprinter E (5223)
- IBM Pageprinter (3812)
- IBM Pageprinter (3820)

Note. If you are using an IBM Pageprinter (3812), which is a serial printer, remember to add the following to your **autoexec.bat**, before **net start srv** ...

MODE COM1:96,E,8,1,p
MODE LPT1 = com1

3.1.6 Interrupt Considerations

It is **very** important that the interrupt level is correct. The following table shows you an interrupt listing table in which different adapters are compared.

3.1.6.1 PC Interrupt levels

Interrupt Levels:	2	3	4	5	6	7
Token-ring Adapt.	R	A			DO	A
3278/9 Adapter	N				NOT	
SDLC Adapter		N	N		USE	
Serial Ports		A	N		THIS	
Parallel ports				N	INTER-	
Enhanced Grap.Adapt.		N			RUPT	

R = normal   A = alternative   N = **CANNOT** be changed

3.1.6.2 PS/2 Interrupt Levels

Levels	Functions
0	Timer
1	Keyboard
2	Cascade Interrupt Control-
3	Serial Alternate
4	Serial Primary
5	Reserved
6	Diskette
7	Parallel Port
8	Real Time Clock
9	Redirect Cascade
10	Reserved
11	Reserved
12	Mouse
13	Math Coprocessor Exception
14	Fixed Disk
15	Reserved

Note: levels 8 through 15 are cascaded through interrupt 2.

3.2 Hardware requirements for IBM PC LAN 1.30

The minimum requirement for a workstation and for a server will be shown in the following section.

3.2.1 Workstation

We will now look at the minimum requirement for a workstation system unit; We will later on look at some LAN configurations.

Minimum requirement for workstations:

- IBM Personal Computer
- IBM Personal Computer XT
- IBM Personal Computer XT/286
- IBM Personal Computer AT
- IBM Personal System/2 (all models)
- Keyboard
- Display adapter and Monitor
- 512KB RAM
- Appropriate LAN Adapter
- Other options

  - IBM 3363 Optical Disk Drive

  - Additional fixed disk drives

  - printers

  - SDLC Communication Adapter or PS/2 Multi-protocol Adapter/A

  - 3278/9 Emulation Adapter or IBM 3270 connection

  - IBM PS/2 Mouse

3.2.2 Server

The absolute minimum requirement for an Extended Services Server is a machin with a fixed disk and 640KB memory.

- IBM Personal Computer XT, AT
- IBM Personal System/2 Models 30, 50, 60, 70 and 80.
- Diskette Drive
- Fixed Disk Drive
- Keyboard
- Display Adapter and Monitor
- 640KB RAM
- Appropriate LAN Adapter

Adapters and devices for workstations and servers are the same.

3.3 Configuration examples

In this chapter we will look at three different configuration examples. One example with a IBM Personal System/2 model 8530-021 and one as a server, an IBM Personal System/2 model 8580-111.

3.3.1 Workstation

This is a typical configuration for a fixed disk workstation on the LAN.

- IBM Personal System/2 Model 8550-021 (20MB Fixed Disk)
- Enhanced Keyboard
- Colour Display Model 8513
- Token Ring Adapter/A #4790
- Token Ring Adapter cable (Approx. 2.5m) #9088
- IBM PC DOS 3.3
- LAN Support Program V.1.02 #7873
- PC LAN Program V.1.30 #0076

3.3.2 Server

The size and power of a server depends entirely on your LAN environment. If your server is serving two or three other machines, or is to be used only as a dedicated print server, then a PS/2 Model 30 may suffice; at the other end of the scale, if the server will be busy being a program and RPL server to several machines, you will want the extra memory, disk storage and performance that a PS/2 Model 60 or 80 gives. The example here is for a high-powered server configuration.

- IBM Personal System/2 Model 8580-111 (114MB Fixed Disk)
- Enhanced Keyboard
- Colour Display Model 8513
- Additional Fixed Disk (114MB)
- 80386 Memory Expansion option #3019
- 80386 Memory Expansion Kit #3064
- Token Ring Adapter/A #4790
- Token Ring Adapter cable (Approx. 2.5m) #9088
- IBM PC DOS 3.3
- LAN Support Program V.1.02 #7873
- PC LAN Program V.1.30 #0076

Note:
For every 8 workstations you need a Multistation Access Unit (Model 8228)

Using IBM Token Ring Network, you are able to connect up to 260 devices. However, be aware if you are using repeaters, these count as devices too.

3.4 Software

3.4.1 PCLP 1.3 Components

The PCLP 1.3 package consists of the following:

- Six 3.5" 720Kb diskettes, **OR**

- Eleven 5.25" 360Kb diskettes

- PCLP 1.3 "Getting Started" documentation

- PCLP 1.3 Technical Reference documentation

NOTE: You are supposed to purchase one copy of the PCLP 1.3 for each machine that will be attached to the LAN. For more details on purchase discounts, please refer to your IBM representative.

3.4.2 Prerequisites

Prior to installing PCLP 1.3, you will need the following software items:

- DOS V3.3 or higher

- LAN Support Program V1.02 (or PC Network Protocol Driver)

4.0 IBM LAN Adapter Drivers

The IBM PC LAN Program is a NETBIOS application. It uses the NETBIOS protocol to establish communication between network stations. NETBIOS is a high level protocol for coding network applications. IBM also provides the IEEE 802.2 LLC interface for low level network communication functions, and APPC (SNA LU6.2) for SNA type communication. The use of IEEE 802.2 LLC, NETBIOS or APPC protocols allows development of applications like PC LAN PROGRAM, 3270 Emulation Program, 3270 Emulation Program, etc., that work with different network hardware without changing the application code. The figure below shows the relationship between the different drivers:

```
APPLICATION  |  APPLICATION                                              |

                |                    V                                  |
                |            +----------------------------------+       |
                |            |              DOS                  |       |
               V            |                                   |        V
        +----------+        | PC LAN PROGRAM REDIRECTOR         |
HIGH    | APPC/PC  |        |                                   |
LEVEL   |          |        |        V              V           |
INTERFACE           +-------------------------------+
                     |       NETBIOS INTERFACE        |
                     +---------------+----------------+
                     | NETBIOS LSP   | PC NETWORK NETBIOS |
                     | DXMT0MOD.SYS  |        or          |
                     | DRIVER        | PC NETWORK PROTOCOL |

LOW        V         V         V
LEVEL    +----------------------------------+
INTERFACE| IEEE 802.2 LLC DRIVER             |
         | DXMCnMOD.SYS/DXMGnMOD.SYS         |

HARDWARE   V                    V              V
         +----------------------------------------+
         |          NETWORK ADAPTER               |
         +----------------------------------------+
```
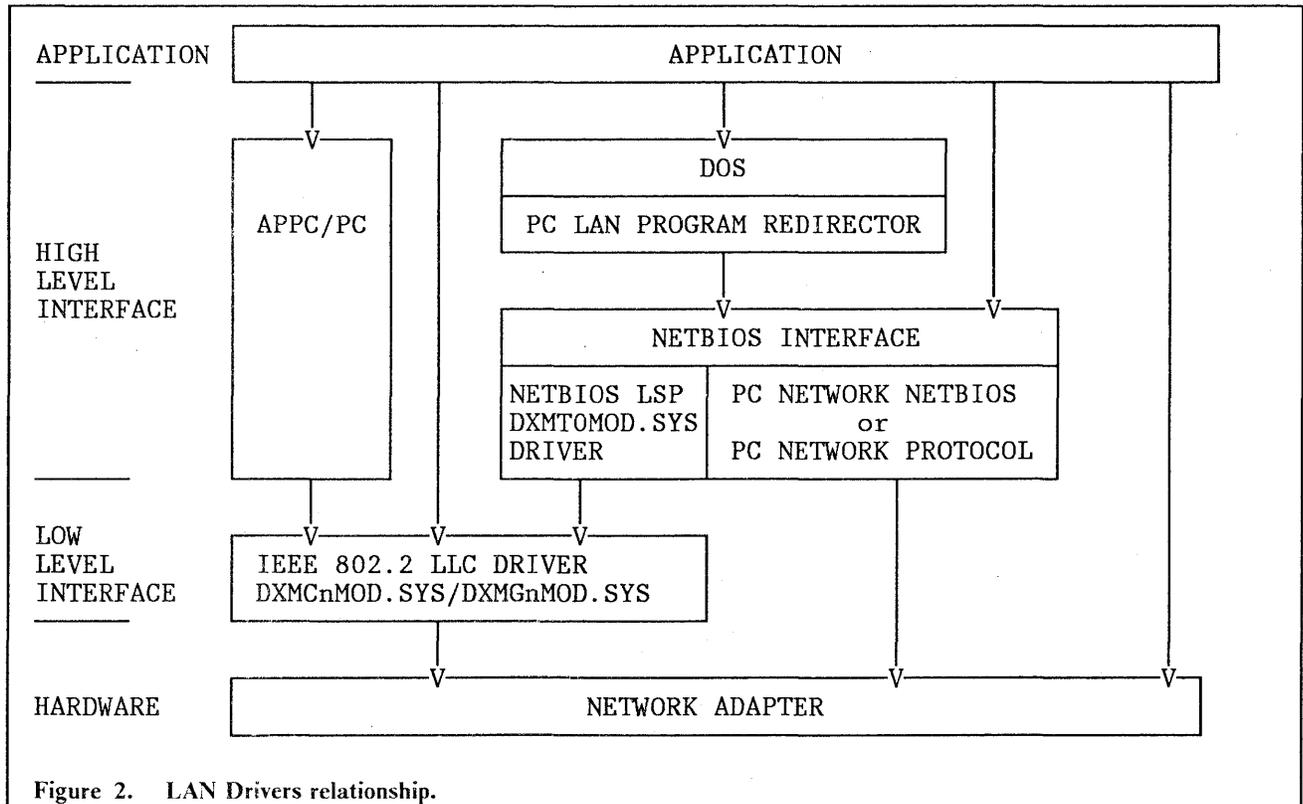
Figure 2.   LAN Drivers relationship.

The applications can access the hardware network:

- Directly.

- Using IEEE 802.2 LLC protocol.

- Using NETBIOS protocol.

- Using DOS Sharing/Network functions.

- Using high level protocols other than NETBIOS, like APPC/PC or TCP/IP.

Use of high level interfaces for network applications provide more functions, a greater portability, an easy migration of applications for different environments and no dependencies in hardware. IBM encourages application development using high level interfaces like APPC or NETBIOS.

Support for IEEE 802.2, APPC and NETBIOS protocols will be included in OS/2 Extended Edition.

The IBM PC LAN Program uses a NETBIOS interface. Therefore it needs NETBIOS device drivers; these are provided by the PC LAN Support Program, the PC Network Protocol Driver or the NETBIOS ROM code in the old PC Network Adapters.

4.1.1   NETBIOS and IEEE 802.2 Basic Terminology

For a better understanding of driver parameters, some NETBIOS and IEEE 802.2 concepts are introduced below:

SAP	A SAP (Service Address Point) is a 'door' through which applications communicate at 802.2 level. A network station can have multiples SAPs: a NETBIOS SAP, a Remote IPL SAP, a SNA LU6.2 SAP, etc.
LINK STATION	Each SAP can have one or several LINKs, one for each network station that has established communications. The messages at 802.2 level are transmitted between LINKs
NAMES	NAME is an address at NETBIOS level. Each NETBIOS station must have at least one NAME.
SESSION	A Session is a logical NETBIOS level connection between two NETBIOS names. The messages at NETBIOS level are transmitted between NAMES in an established SESSION.

A detailed description of NETBIOS and IEEE 802.2 protocols and parameters is available in the following IBM manuals:

- IBM Token-Ring Network PC Adapter Technical Reference

- IBM Token-Ring Network Architecture Reference

4.2 IBM LAN Support Program 1.02

4.2.1 Introduction

The IBM Local Area Network Support Program (LSP) provides IEEE 802.2 LLC and NETBIOS interface for the following IBM LAN Adapters:

- PC Network Broadband
  - PC Network Adapter (with some restrictions)
  - PC Network Adapter II
  - PC Network Adapter II/A
  - PC Network Adapter II - Frequency 2
  - PC Network Adapter II - Frequency 3
  - PC Network Adapter II/A - Frequency 2
  - PC Network Adapter II/A - Frequency 3
- PC Network Baseband
  - PC Network Baseband Adapter
  - PC Network Baseband Adapter/A
- Token Ring Network
  - Token Ring Network PC Adapter
  - Token Ring Network PC Adapter II
  - Token Ring Network Adapter/A
  - Token Ring Network Trace and Performance Adapter/A
  - Token Ring Network Trace and Performance PC Adapter

4.2.1.1 Prerequisites.

- PC, PC-XT, PC-AT, Industrial Computer, 3270-PC, PS/2 with at least 128KB.

- A display.

- A LAN Adapter (any of above).

- A diskette drive or Remote IPL capability.

- DOS 3.3 or higher

4.2.1.2 Pre-installation.

Before you install the IBM LAN Support Program you need to know:

1. Which type of adapter(s) is(are) installed?

    *   PC Network Adapter

        NOTE: Only one adapter is allowed. No additional LAN Adapter or commu-
        nication Adapter (SDLC,ASYNC) can be used. Workstation Program is not
        supported.

    *   Any other PC Network Adapter

    *   Any Token Ring Adapter

2. Will IBM Workstation Program or a XMA card be used?

3. Is the BIOS date before June 85?

4.2.1.3 Installation.

For installation purposes you can use the DXMAID program included in the LAN Sup-
port Program diskette.

DXMAID provides a full screen user friendly interface for installing the IBM LAN Sup-
port program. It checks for the adapters installed, copies the proper device files and adds
the required lines to the CONFIG.SYS file.

You can also install the program manually. You need to include the proper device drivers
in your booting diskette or fixed disk using the following table:

DRIVERS	DESCRIPTION
TIMERINT.SYS	Required only if BIOS date before June 85 (Use BIOSDATE Program included in LSP)
DXMAOMOD.SYS	Required — Interrupt Arbitrator
DXMCOMOD.SYS DXMC1MOD.SYS DXMG2MOD.SYS DXMGOMOD.SYS DXMG1MOD.SYS	IEEE 802.2 Adapter Device Drivers Token Ring Adapter — No WSP/XMA Token Ring Adapter — WSP/XMA PC Network Adapter Any other PC Network Adapter — No WSP/XMA Any other PC Network Adapter — WSP/XMA
DXMTOMOD.SYS	NETBIOS Device Driver

Figure 3. LSP Drivers.

In the CONFIG.SYS file you need to add the following lines:

CONFIG.SYS Lines	Comments
DEVICE=d:\path\TIMERINT.SYS	Only if BIOS date < June 85
DEVICE=d:\path\DXMA0MOD.SYS	Required
DEVICE=d:\path\DXMxnMOD.SYS	Adapter Driver
DEVICE=d:\path\DXMxnMOD.SYS	Optional 2nd Adapter Driver. Only if you have TR & PC Network adapters installed
DEVICE=d:\path\DXMT0MOD.SYS	Required

Figure 4. LSP CONFIG.SYS DEVICE lines.

where d:\path\ is the physical location of these files, and 'xn' depends on adapter type and Workstation program support.

4.2.1.4 CONFIG.SYS Examples.

- Old BIOS and PC Network Adapter.

  DEVICE = d:\path\TIMERINT.SYS
  DEVICE = d:\path\DXMA0MOD.SYS
  DEVICE = d:\path\DXMG2MOD.SYS
  DEVICE = d:\path\DXMT0MOD.SYS

- One Token Ring Adapter.

  DEVICE = d:\path\DXMA0MOD.SYS
  DEVICE = d:\path\DXMC0MOD.SYS
  DEVICE = d:\path\DXMT0MOD.SYS

- Two Token Ring Adapters.

  DEVICE = d:\path\DXMA0MOD.SYS
  DEVICE = d:\path\DXMC0MOD.SYS
  DEVICE = d:\path\DXMT0MOD.SYS

- One PC Network II or PC Network Baseband Adapter.

  DEVICE = d:\path\DXMA0MOD.SYS
  DEVICE = d:\path\DXMG0MOD.SYS
  DEVICE = d:\path\DXMT0MOD.SYS

- Two PC Network II or PC Network Baseband Adapters.

```
DEVICE = d:\path\DXMA0MOD.SYS
DEVICE = d:\path\DXMG0MOD.SYS
DEVICE = d:\path\DXMT0MOD.SYS
```

- One Token Ring Adapter and one PC Network II or PC Network Baseband Adapter.

```
DEVICE = d:\path\DXMA0MOD.SYS
DEVICE = d:\path\DXMC0MOD.SYS ,D800
DEVICE = d:\path\DXMG0MOD.SYS
DEVICE = d:\path\DXMT0MOD.SYS
```

NOTE: Install the PC Network Adapter as a Primary Adapter and the Token Ring Adapter as an Alternate Adapter with RAM shared segment address D800.

- One Token Ring Adapter with Workstation Program

```
DEVICE = d:\path\DXMA0MOD.SYS
DEVICE = d:\path\DXMC1MOD.SYS
DEVICE = d:\path\DXMT0MOD.SYS
```

4.2.2 Tailoring the LAN Support Program

The LAN Support Program drivers can be customized for configuration or tuning purposes.

We will describe the parameters for each device driver and their use.

4.2.2.1 TIMERINT.SYS

No parameters allowed.

4.2.2.2 DXMA0MOD.SYS

One parameter is allowed. This parameter defines the language for display load-time errors. LSP 1.02 does not support this parameter. The messages are in English.

4.2.2.3 DXMC0MOD.SYS/DXMC1MOD.SYS

This driver is for use with one or two token ring adapters.

The coding format is:

DEVICE = d:\path\DXMCnMOD.SYS addr0,mem0,addr1,mem1

The parameters **addr0** and **mem0** refers to the first token ring adapter; **addr1** and **mem1** refers to the alternate adapter.

The parameter **addr?** allows you to change the default adapter address. The default address is in the range that is administered universally by the standards committees for local area networks. This UNIVERSALLY ADMINISTERED ADDRESS is the default address for the adapter if no address is specified in the **addr?** parameter.

If the network administrator chooses, he may assign a LOCALLY ADMINISTERED ADDRESS that will override the UNIVERSALLY ADMINISTERED ADDRESS on the adapter. This address must consist of 12 hexadecimal digits that range from '400000000000' to '40007FFFFFFF'. Values outside this range may be incompatible with other products on the network.

Each address must be unique on the network. An error will result when two or more adapters with the same address attempt to use the network.

The parameter **mem?** allows you to specify the shared RAM segment address. The defaults are D800 for primary adapter and D400 for alternate adapter. Set this parameter in accordance with the RAM shared address specified in the DIP switches for PC adapters, or in the hardware configuration process (with the PS/2 set up diskette) for /A adapters.

Coding examples:

- DEVICE = DXMCnMOD.SYS 400000000001

  '400000000001' is the new address for the primary adapter, which will override the default address encoded on the adapter. All other defaults will be retained.

- DEVICE = DXMCnMOD.SYS ,C200

  'C200' is the new Shared RAM segment (the physical address is C2000) for the primary adapter. The default location for the primary adapter will be overridden. All other defaults will be retained. Note the comma before the RAM location. This indicates that a parameter (the primary adapter address) has been omitted.

- DEVICE = DXMCnMOD.SYS 400000000001,,400000000002

  '400000000001' is the address for the primary adapter, and '400000000002' is the address for the alternate adapter. The second comma in the list indicates that the default value for the primary Shared RAM location is being retained. The alternate Shared RAM location will also be retained since nothing is coded after the alternate adapter address in the list.

- DEVICE = DXMCnMOD.SYS ,C200,,AA00

  'C200' is the Shared RAM location for the primary adapter, and 'AA00' is the Shared RAM location for the alternate adapter. The default adapter addresses for the primary and alternate adapters will be retained.

- DEVICE = DXMCnMOD.SYS 400000000001,C200,400000000002,AA00

  The defaults for both adapter addresses and both Shared RAM locations have been changed.

4.2.2.4 DXMG0MOD.SYS/DXMG1MOD.SYS

This driver is for use with one or two PC Network type II or PC Network Broadband adapters.

The coding format is:

DEVICE = d:\path\DXMGnMOD.SYS addr0,wrk0,addr1,wrk1

The parameters **addr0** and **wrk0** refers to the first PC Network adapter; **addr1** and **wrk1** refers to the alternate adapter.

The parameter **addr?**, if specified, overrides the UNIVERSALLY ADMINISTERED ADDRESS with a LOCAL ADMINISTERED ADDRESS.

The parameter **wrk?** provide the size in Kbytes for the adapter work area. The default is 8 Kbytes.

Coding example:

* DEVICE = DXMGnMOD.SYS ,20

  The new size of the work area for the primary adapter is 20 Kbytes. All other defaults will be retained. Note the comma before the work area size; this indicates that a parameter (the primary adapter address) has been omitted.

4.2.2.5 DXMG2MOD.SYS

This driver is for use with only one PC Network adapter.

The coding format is:

DEVICE = d:\path\DXMG2MOD.SYS addr,wrk

The parameter **addr**, if specified, overrides the UNIVERSALLY ADMINISTERED ADDRESS with a LOCAL ADMINISTERED ADDRESS.

The parameter **wrk** provide the size in Kbytes for the adapter work area. Again, the default is 8 Kbytes.

4.2.2.6 DXMT0MOD.SYS

This is the NETBIOS device driver.

The coding format is:

DEVICE = d:\path\DXMT0MOD.SYS E pp1 = n1,pp2 = n2.../ap1 = m1,ap2 = m2...

The parameter E (Enable) is optional. It should be used when the computer contains a high-speed asynchronous adapter used simultaneously with a LAN adapter. If it is coded there may be some loss in performance. This parameter should be used with Remote NETBIOS or Asynchronous Server programs.

The position of the parameters **pp1, pp2, ap1, ap2**, etc. do not matter. The character "/" separates the parameters for the primary and alternate adapters.

These parameters could be any of the specified in the following table:

KEYWORD		ABBR	VALID VALUE	MIN	DEF
STATIONS	(1)	ST	0 - 254	1	6
SESSIONS		S	0 - 254	1	6
COMMANDS		C	0 - 255	1	12
NAMES		N	0 - 254	2	17
OPEN.ON.LOAD		O	Y/N	-	YES
DATAGRAM.MAX		DG	Y/N	-	NO
CLOSE.ON.RESET		CR	Y/N	-	NO
DHB.SIZE	(1)	DS	0,200-9999	200	(3)
DHB.NUMBER	(1)	DN	0 - 9	-	(3)
RECEIVE.BUFFER.SIZE	(1)	R	0 - 9999	(2)	(3)
TRANSMIT.TIMEOUT		TT	0 - 20	0	1
TRANSMIT.COUNT		TC	0 - 10	0	6
DLC.MAXOUT		MO	0 - 9	0	2
DLC.MAXIN		MI	0 - 9	0	1
RING.ACCESS		RA	0 - 7	0	0
EXTRA.SAPS	(1)	ES	0 - 99	0	0
EXTRA.STATIONS	(1)	EST	0 - 99	0	0
REMOTE.NAME.DIRECTORY		RND	0 - 255	0	0
REMOTE.DATAGRAM.CONTROL		RDC	Y/N	-	NO
RESET.VALUES		RV	Y/N	-	NO
ADAP.ADDR.NOT.REVERSED		ANR	Y/N	-	NO
DLC.RETRY.COUNT		RC	0 - 255	0	8
DLC.T1		T1	0 - 10	0	5
DLC.T2		T2	0 - 11	0	2
DLC.TI		TI	0 - 10	0	3

Figure 5. **LSP parameters.**
NOTES:

(1) If this value is too large the adapter open will fail. Use Network Adapter resources. The maximum value allowed here typically exceeds current adapter maximum values.

(2) If a value is specified, its value is not checked by the NETBIOS Interface Device Driver. The value is checked by the adapter on open. Current adapters require a minimum value of 96.

(3) The default value set by the NETBIOS Interface Device is based upon the number of stations. Consult the following table:

Adapter	ST	DN	DS	R	Adapter	ST	DN	DS	R
TOKEN-RING	01-06	2	1048	280	ANY	01-32	2	2040	280
PC ADAPTER	07-12	1	1048	192	OTHER	33-48	2	1048	280
with	13-18	1	600	144	NETWORK	49-64	1	1048	280
8KB Shared	19-24	1	600	112	ADAPTER	64+	1	600	144
RAM	24+	1	600	96					

4.2.3 Adjusting NETBIOS parameters.

For use with the IBM PC LAN Program V1.3 the following are the most relevant parameters for customizing and performance purposes. The parameters /SRV, /RDR, /SES, /CMD are from IBM PC LAN Program.

● ST (STATIONS)

This parameter defines the maximum number of NETBIOS link stations open at one time. A device on a LAN needs one link station for each other LAN-connected device with which it must communicate. Then, the value should be at least /SRV + /RDR for Server configuration and /SRV for Messenger, Receiver or Redirector configuration. The number of required stations should never be greater than the number of sessions.

● S (SESSIONS)

This parameter defines the maximum number of NETBIOS Sessions that may be defined for all applications running in the PC. Normally this would be equal to the NET START /SES value. Refer to "Tailoring NET START parameters" in Chapter 6 for further discussion about the relationship between these two parameters. rebe used in specifying this value when 3270 Emulation v3.0 and PCLP are resident. This is because PCLP must specify the total number of sessions (and commands, see below) required by both.

● C (COMMANDS)

This parameter defines the maximum number of NETBIOS Commands (NCB) that may be outstanding at one time. Should be equal to /CMD value. If you specify a higher value, the additional commands not be used for any program.

● N (NAMES)

This parameter defines the maximum number of NETBIOS Names that may be defined. Use the default for any configuration.

● O (OPEN.ON.LOAD)

This parameter specifies the DXMT0MOD driver will open the adapter at load time.

O = Y   The DXMT0MOD driver will open the adapter. This will eliminate the delay attributed to adapter open when the first NETBIOS command is issued by an application like PC LAN Program.

O = N   A NETBIOS application will open the adapter.

The PC LAN Program opens the adapter with the parameters specified in /SES and /CMD Then O = N is the recommended setting for PC LAN Program.

● DS (DHB.SIZE)
● DN (DHB.NUMBER)
● R (RECEIVE.BUFFER.SIZE)

These parameters allow you to specify the number and size of transmit buffers and the size of receive buffers. The number of receive buffers should be at least 8. The sizes of transmit and receive buffers must be a multiple of 8. The number of transmit buffers should be 1 or 2. If a value greater than 2 is specified then the integrity of the adapter cannot be guaranteed. See the 'Determining Work Area Utilization' section for information about the maximum sizes of these buffers.

- ES (EXTRA.SAPS)
- EST (EXTRA.STATIONS)

These parameters allow you to specify additional SAPs and Stations that will not be used for the NETBIOS interface. Specify **ES = 2 EST = 2** when the PC-PS/2 would be a Remote IPL Server.

When you use the PC LAN PROGRAM with another NETBIOS or LAN program like IBM 3270 Emulation Program Version 3, IBM Workstation Program, etc. you need to add the resources the program requires.

The following table describes the network resources needed for some LAN applications:

APPLICATION	CONFIGURATION	ST	S	C	ES	EST	DS
PC 3270 EMULATION PROGRAM VERSION 3	STANDALONE DFT/SDLC	0	0	0	0	0	
	STANDALONE TOKEN-RING	0	0	0	1	1	>=256
	GATEWAY(*) DFT/SDLC N Names (N < 32)	(1)	N	N+1	0	0	
	GATEWAY(*) DFT/SDLC 32 Names	(1)	32	32	0	0	
	GATEWAY(*) TOKEN-RING N Names (N < 32)	(1)	N	N+1	1	1	>=256
	GATEWAY(*) TOKEN-RING 32 Names	(1)	32	32	1	1	>=256
	NETWORK STATION	(1)	2	4	0	0	
WORKSTATION PROGRAM VERSION 1.1	STANDALONE DFT/CUT	0	0	0	0	0	
	STANDALONE TOKEN-RING	0	0	0	1	1	(2)
ASYNCHRONOUS COMMUNICATION SERVER	1 COM PORT	(1)	2	7	0	0	
	2 COM PORTS	(1)	2	10	0	0	

Figure 6.   NETBIOS and 802.2 resources for LAN applications. NOTES:

(*)   Or Gateway and Network Station.

(1)   Add only the number of machines not connected with this station using PC LAN Program.

(2)   Should be at least the size specified in the configuration panel of Workstation Program.

For example, a LAN scenario with 3270 Emulation Program Version 3 and PC LAN Program is shown. The NET START examples only include LSP related parameters. Other NET START parameters can be added.

4.2.3.1 LAN Scenario Description
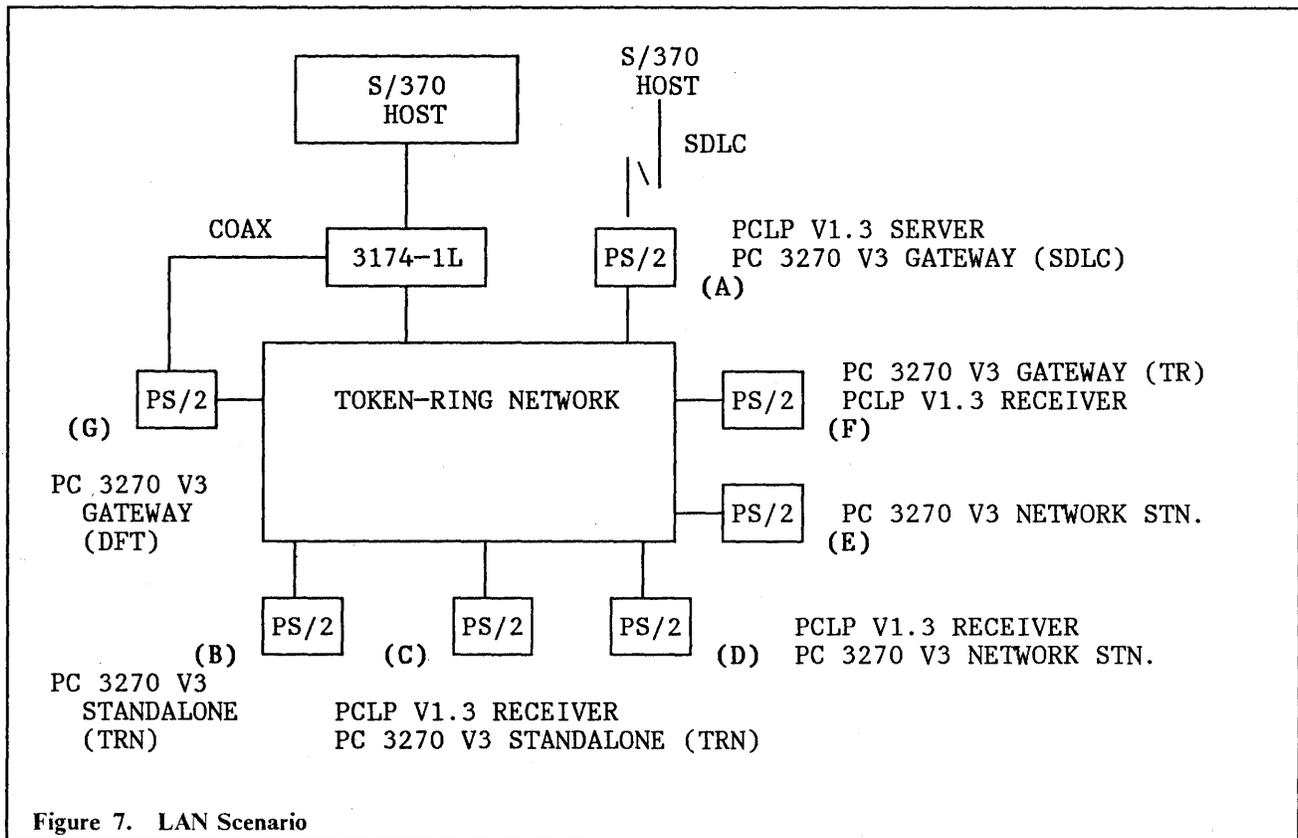
Figure 7. LAN Scenario

This scenario consists of a Token-Ring Network with four 3270 gateways and one PC file server. One of the 3270 gateways is a 3174-1L with the Token-Ring Network 3270 Gateway feature. The others 3270 gateways are PC 3270 Emulation Program V3 with gateway configuration.

Machine Descriptions and device drivers parameters:

(A)   PC 3270 Emulation Program SDLC gateway and PC LAN Program Server. 46 PS/2 machines use this machine. 30 PS/2 are only LAN receivers, 10 are receivers and 3270 Emulation network stations and 6 only 3270 network stations. Then we have 40 receivers and 16 3270 Emulation Network Stations. There are no other servers in the LAN.

- PC LAN Program Sessions: 44 (/USN + /SRV + /RDR + 2)

- 3270 PC Emulation Program Sessions: 16 (16 names)

- Total Sessions required: 60

- PC LAN Program Commands: 12 (/REQ + /USN + 5)

- 3270 PC Emulation Program Commands: 17 (16 names)

- Total Commands required: 29

- 46 Stations connected.

```
DEVICE = \path\DXMA0MOD.SYS
DEVICE = \path\DXMC0MOD.SYS
DEVICE = \path\DXMT0MOD.SYS S = 60 C = 29 ST = 46

NET START SRV name /SRV:1 /RDR:40 /SES:60 /CMD:29 /USN:1 /REQ:6
```

Figure 8.   Configuration: A Station

> NOTE: The additional values need to be included also in the NET START command.

(B)   PC 3270 Emulation Program Token-Ring Standalone only. It does not run PC LAN Program.

```
DEVICE = \path\DXMA0MOD.SYS
DEVICE = \path\DXMC0MOD.SYS
```

Figure 9.   Configuration: B Station

> NOTE: The Token-Ring Standalone configuration use IEEE 802.2 protocol, then the NETBIOS driver (DXMT0MOD) are not needed.

(C)   PC 3270 Emulation Program Token-Ring Standalone and PC LAN Program receiver.

```
DEVICE = \path\DXMA0MOD.SYS
DEVICE = \path\DXMC0MOD.SYS
DEVICE = \path\DXMT0MOD.SYS S = 3 C = 4 ST = 1 ES = 1 EST = 1

NET START RCV name /SRV:1 /SES:3 /CMD:4
```

Figure 10.   Configuration: C Station

(D)   PC 3270 Emulation Program Network Station and PC LAN Program receiver.

- PC LAN Program Sessions: 3

- 3270 PC Emulation Program Sessions: 2

- Total Sessions required: 5

- PC LAN Program Commands: 4

- 3270 PC Emulation Program Commands: 4

- Total Commands required: 8

```
DEVICE = \path\DXMA0MOD.SYS
DEVICE = \path\DXMC0MOD.SYS
DEVICE = \path\DXMT0MOD.SYS S = 5 C = 8 ST = 2

NET START RCV name /SRV:1 /SES:5 /CMD:8
```

Figure 11.   Configuration: D Station

> NOTE: You only need one or two stations depending of the gateway. Specify one if it is a network station of A machine. Specify two if any other 3270 gateway is used (F,G).

(E)   PC 3270 Emulation Program Network Station only.

```
DEVICE = \path\DXMA0MOD.SYS
DEVICE = \path\DXMC0MOD.SYS
DEVICE = \path\DXMT0MOD.SYS  S = 2  C = 3  ST = 1
```

Figure 12. Configuration: E Station

(F)   PC 3270 Emulation Program Token-Ring Gateway servicing 10 PS/2 and PC LAN Program receiver.

- PC LAN Program Sessions: 3

- 3270 PC Emulation Program Sessions: 10

- Total Sessions required: 13

- PC LAN Program Commands: 4

- 3270 PC Emulation Program Commands: 11

- Total Commands required: 15

- Link Stations: 10 for Network Stations and 1 for Server.

- Extra SAP and Extra Station needed for 3174 Token-Ring Gateway communication.

```
DEVICE = \path\DXMA0MOD.SYS
DEVICE = \path\DXMC0MOD.SYS
DEVICE = \path\DXMT0MOD.SYS  S = 13  C = 15  ST = 11  ES = 1  EST = 1

NET START RCV name /SRV:1 /SES:13 /CMD:15
```

Figure 13. Configuration: F Station

(G)   PC 3270 Emulation Program DFT Gateway servicing 5 PS/2 only.

```
DEVICE = \path\DXMA0MOD.SYS
DEVICE = \path\DXMC0MOD.SYS
DEVICE = \path\DXMT0MOD.SYS  S = 5  C = 6  ST = 5
```

Figure 14. Configuration: G Station

4.2.4 Determining Work Area Utilization.

The STATIONS, EXTRA.SAPS, EXTRA.STATIONS, DHB.SIZE, DHB.NUMBER and RECEIVE.BUFFER.SIZE parameters define the configuration of the Token-Ring Shared RAM Area and the PC Network work area.

The assignment of RAM is as follows:

1. 1588 bytes for internal adapter use.

2. 64 bytes for each SAP.

3. 144 bytes for each link station.

4. DHB.SIZE * DHB.NUMBER bytes for transmit buffers.

5. Remainder for receive buffers.

For example, if you specify:

DEVICE = DXMT0MOD.SYS ST = 10 DS = 1536 DN = 2 R = 200 ES = 2 EST = 2

The assignment is as follows:

Work Area (Size in Bytes)	8 KB 8192	16 KB 16384
Adapter Internal Use SAPs (1 NETBIOS + 2 EXTRA) LINKs (10 NETBIOS + 2 EXTRA) Transmit Buffers	1588 192 1728 3072	1588 192 1728 3072
Total	6580	6580
Available for Receive Buffers	1612	9804
Size of Receive Buffers Number of Receive Buffers	200 8	200 49
Unused Memory	12	4

Figure 15. Work Area utilization example.

Note:

*   Number of defined SAPs is **ES** + 1. One for the standard NETBIOS SAP and one for each additional SAP.

*   Number of links is **ST** + **EST**; **ST** link stations are defined for the NETBIOS SAP and **EST** link stations for additional SAPs.

- The value of **R** and **DS** must be a multiple of 8. If the number is not a multiple of 8 number, it is rounded or truncated.

- Each Receive Buffer holds 8 fewer bytes of data then the specified size. The 8 bytes are overhead needed by the adapter.

- Each Transmit Buffer holds 6 fewer bytes of data then the specified size. The 6 bytes are overhead needed by the adapter.

- The integrity of the adapter cannot be guaranteed if the value of **DN** is greater than 2.

- The work area for Token-Ring adapters is their Shared RAM area. It is 8KB for Token-Ring PC Adapters and 16KB for the others Token-Ring Adapters. The work area for PC Network Adapters is a parameter of DXMGnMOD driver; the default is 8KB and the maximum allowed is 64KB.

- Number of receive buffers should be at least 8. For example, if you specify R = 208 in a Token-Ring PC Adapter an "OPEN ERROR" occurs because you do not have enough space for 8 receive buffers with 208 bytes each.

4.2.5 Determining Session Transmit Frame Size.

When a session is established between two NETBIOS nodes, the length of the largest transmit data frame sent between the stations is determined by the following formula:

Session Transmit Frame Size = MINIMUM(INT(NRBr/2) * Rr , DHB.SIZEs)

where:

INT	Integer function. (INT(2.5) = 2, INT(3.0) = 3).
NBRr	Number of receive buffers of receiver station.
Rr	Receive buffer size of receiver station.
DHB.SIZEs	Transmit buffer size of sender station.

For example, if sessions are established between stations A and B, where station A has a Token-Ring PC Adapter II (16 KB) and station B has a Token-Ring PC Adapter (8 KB). Both stations specify:

DEVICE = DXMT0MOD.SYS ST = 10 DS = 1536 DN = 2 R = 200 ES = 2 EST = 2

Then the maximum frame sizes are:

A to B: **800**

4 receive buffers*200, 1 Transmit Buffer * 1536.

B to A: **1536**

24 receive buffers*200, 1 Transmit Buffer * 1536.

The number and size of transmit and receive buffers significantly impact the network performance. A guideline: define two big transmit buffers and many short receive buffers for servers; define short transmit buffers and enough receive space for two or more server transmit buffers for workstations.

4.3 PC Network Adapter NETBIOS

The PC Network Adapter NETBIOS is a NETBIOS protocol implementation included in the ROM BIOS system of the PC Network Adapter. This implementation does not provide a IEEE 802.2 interface and is not compatible with the environment provided by the PC LAN Support Program. Machines working with this driver cannot establish sessions with PC LAN Support Program stations or use APPC/PC program.

This driver supports up to 32 sessions, 32 commands and 17 names.

4.4 PC Network Protocol Driver 1.0

The PC Network Protocol Driver is a NETBIOS protocol implementation for PC Network II and PC Network Adapter II/A compatible with the ROM BIOS PC Network Adapter NETBIOS. This implementation does not provide a IEEE 802.2 interface and is not compatible with the environment provided by the PC LAN Support Program. Machines working with this driver cannot establish sessions with PC LAN Support Program Stations or use APPC/PC program.

This driver supports up to 64 names, 32 commands and 64 sessions.

4.4.1 Prerequisites

- PC, PC-XT, PC-AT, Industrial Computer, 3270-PC, PS/2 with at least 128KB.

- A display.

- PC Network Adapter II or PC Network Adapter II/A.

- A diskette drive.

- DOS 3.2 or higher.

4.4.2 Installation

Use the 'NETINSTA.BAT' included in the Protocol Driver diskette. Just insert the diskette in your A: drive and type A: NETINSTA.

You also can install the driver manually. Copy the file **IBMPCNET.SYS** in your diskette or disk and add the following line in your CONFIG.SYS file:

DEVICE = d:\path\IBMPCNET.SYS

No parameters are allowed.

5.0 Planning your Installation

To take full advantage of IBM PCLP 1.30 Extended Services some planning work has to be done in advance to installing the LAN.

The main planning decision is to determine how the servers and the domains should be grouped. This is a simple task for small LAN's consisting of only one Domain, which may also be the only server in the LAN. In case of a large LAN the main objective of planning is to group the servers and workstations to different domains which normally will reflect the organizational structure of a company. Usage of external resources should be kept to a minimum. External resources are not as secure as internal resources, since Base Services access methods are used. Before you begin installing, refer to the following checklists to ensure you have everything covered:

5.1 Organisation

- Does your organisation fall naturally into:

  - Departments

  - Physical Work Areas

  - Logical Work Groups?

- Do you want the whole LAN to be controlled by one administrator or to nominate one administrator per department?

- How many users are there in each department; how often do they use the LAN facilities: do you need a 1:1 user-machine ratio?

- What do the users in each department need, in terms of:

  - Access to Applications

  - Printing Facilities

  - Machine configurations (eg.colour/mono screen)

5.2 Hardware

- Which machines and devices are to be connected to the LAN

- Which printers are to be shared

- Which disk drives are to be shared

- How is the LAN to be made into domains (one or more?)

  For each domain:

  - Which machine is to be the domain controller

- Will you use this as a server also (you can)

- Will you use this as a server, and/or have additional servers, to share or support:

  ▲ Applications

  ▲ Printers

  ▲ Remote Program Load

  ▲ PCLP programs

- Will you be using Remote Program Load workstations, in which case, have you the checked the adapter prerequisites?

5.3 Software

- How many licences of PCLP 1.3 will you need?
  You need to buy one license for each network station attached to the LAN, regardless of the number of defined users.

- Have you all the application software you need?
  For IBM software, you need to buy one license for each concurrent user on the LAN. For non-IBM software licensing requirements, refer to program documentation or vendor.

5.4 Users

- Decide on a naming convention ɪᴄɪ giving users userids.

- Nominate one administrator within each domain; consider carefully if you want more than one.

- A user may have more than one id for signing on at multiple machines or multiple domains. Do your users need more than one userid? Beware of the increased complexity of allowing this.

- Do users need to be defined in more than one domain? One user id can be defined in multiple domains.

5.5 Performance Considerations

- How much work will each server be doing?

- Can you dedicate each server? (This is strongly advised)

- If you are using 3270 Communications, you can combine a server machine with a 3270 Gateway. How many stations is this gateway to support, and what sort of response times are expected?

- How will you distribute the resources evenly amongst the servers?

5.6 Security

- Assign passwords to all users and to yourself as administrator; without administrator sign on, no user can change his access to resources or data in the domain.

- As mentioned above, try to keep resource sharing within a domain as much as possible, since this ensures maximum security. External resources are less secure because of the use of the traditional NET SHARE and NET USE commands.

- To protect the information held on your domain controller and server make sure that these machines are either password protected (if PS/2's), keylocked or kept in a secure place. Although only an administrator can log on to the LAN, there is an option on the servers to "use server only" and not start Extended Services. This option only appears at machine boot up, and is really for an administrator who has forgotten his/her password and needs to use PCLP functions to reset it. It does mean, however, that anyone could reboot the machine and access PCLP administration functions in this way.

5.7 Backup

There is no automated server backup within PCLP 1.3. All the domain definitions are held on the domain controller, so after you have created these, do back up the domain controller disk on to a tape streamer or Optical Disk Drive (the 3363 will do this nicely). In the unlikely event that your domain controller dies, you will need this backup to restore all the domain definitions; otherwise you will have to redefine everything and everyone.

5.8 Planning for RPL

Distribution of resources on different servers should be carefully evaluated to eliminate "built in" performance constraints. If the LAN is planned to rely heavily on RIPL, it is a good idea to place RIPL services on "dedicated" domain controllers (ie.they are not file or print serving), or even on dedicated RPL servers.

Before installation remember to document the adapter addresses of RPL workstations; this process is detailed in the following chapter.

5.9 Physical Installation

The suggested order of setup and details for each step are covered in the following chapters. Your initial steps should be these:

- Install Domain Controllers and Servers

- Document Machine ID's

- Install Applications/Datasets on Servers

- Use Predefined Directory Structure

- Start ALL Servers in the LAN

- Extended Services Servers

- Base Services Servers

5.10 Planning Worksheets

A set of these is included in Appendix B of this guide.

6.0 PC LAN Program 1.3 Installation.

PC LAN program (PCLP) 1.3 comes on eleven 5.25″ diskettes, or six 3.5″ diskettes. An installation utility is provided in diskette 0. This utility can be used to install the PCLP 1.3 for the following configurations:

- BASE SERVICES

  - Diskette or disk based REDIRECTOR station.

  - Diskette or disk based RECEIVER station.

  - Diskette or disk based MESSENGER station.

  - Disk based SERVER station.

- EXTENDED SERVICES

  - Disk based REDIRECTOR workstation.

  - Disk based RECEIVER workstation.

  - Disk based SERVER.

  - Disk based DOMAIN CONTROLLER.

After you install a Domain Controller you can use the MANAGE-IMAGE administrator function for a proper installation of:

- Diskette based EXTENDED SERVICES workstation.

- Diskette based BASE SERVICES REDIRECTOR, RECEIVER or MESSENGER station.

- Remote IPL EXTENDED SERVICES workstation.

- Remote IPL BASE SERVICES REDIRECTOR, RECEIVER or MESSENGER station.

The installation utility requires a machine with one diskette drive and a fixed disk. To create Base Services diskettes, a second physical diskette drive (**B:**) is required.

If you plan to install an Extended Services Server or Domain Controller, and you are using LSP drivers, you will need the LSP diskette during the installation process.

The PCLP installation process consists of five major steps:

1. Install DOS and LAN device drivers.

2. Install PCLP.

3. Specify optional DOS modules (KEYB, GRAPHICS, GRAFTABL, etc.) in AUTOEXEC.BAT and CONFIG.SYS files.

4. Adjust NET START parameters in AUTOEXEC.BAT file.

5. If LSP is used, adjust LSP parameters in CONFIG.SYS file.

Refer to DOS Manual for DOS installation and (LAN device drivers chapter) for LAN Device Drivers installation.

6.1 Installing PCLP

6.1.1 Using the Installation Utility (A:\INSTALL)

Before using the installation utility you must ensure that all the DOS files are installed in a directory in the fixed disk drive C: and that in the CONFIG.SYS file you have specified at least **FILES = 20**. If this value is not big enough, then the following screen is displayed.

```
Error: Cannot open a required system file because DOS has no more free
       file handles for use in a file open operation.

       To rectify, increase the value of N in the declaration FILES=N
       in the CONFIG.SYS file for this machine, then reinitialize the
       computer by switching it off and on again. See the PC LAN
       Program Reference manual for more information.

Esc=Quit   F1=Help
```
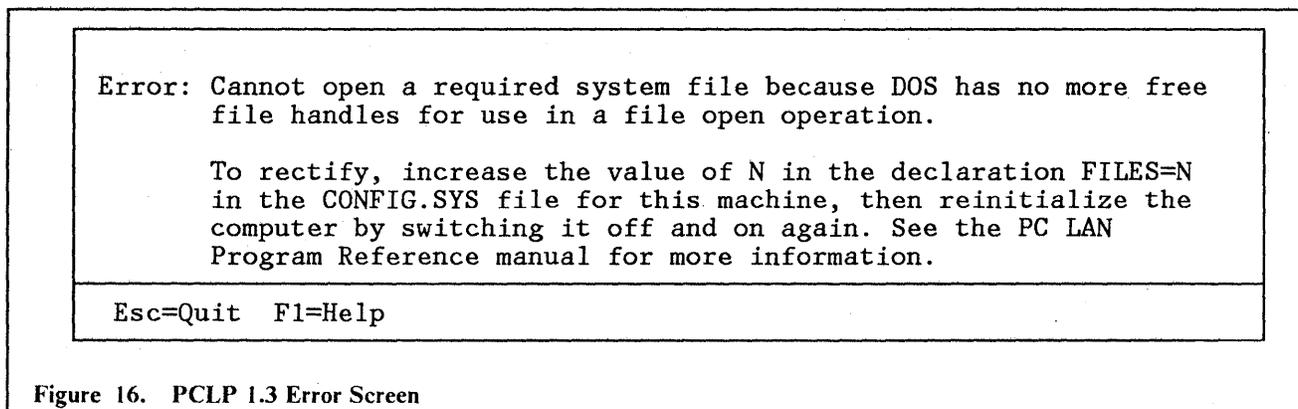
Figure 16. PCLP 1.3 Error Screen

Insert PCLP diskette 0 in diskette drive A:. Type **A:\INSTALL** and press enter. Read carefully the screens and follow instructions. Answer and fill in the required information as it is specified below.

```
A:\INSTALL ──────> INFORMATION PANELS
                        │
                        V

            ┌─── BASE SERVICES
            │
            │      EXTENDED SERVICES ────────────┐
            │      selection panel               │
            V                                    V
   ┌─ REDIRECTOR                          WORKSTATION ─┐
   ├─ RECEIVER                      ┌─ SERVER          │
   ├─ MESSENGER                     │  selection panel │
   │                                │                  │
   │      SERVER ──────┐            │                  │
   └─selection panel   │            │  SEND MESSAGES   │
                       │            │  SEND, RECEIVE MESSAGES <─┘
                       V            │  selection panel
   └─> DOS DIRECTORY    DOS DIRECTORY        │
       panel            panel                V
         │                          ┌─> DOS DIRECTORY
         V                          │   panel
   DISKETTE B:                      │        │
   FIXED DISK                       │        V
   selection panel                  │   MACHINE ID
         │                          │   DOMAIN CONTROLLER ID
         V                          │   panel
   MACHINE ID  <──────┐             │        │
   panel              │             │        │
         │            │             │        │
         └──> CUSTOMIZE SYSTEM PARAMETERS <───┘
              (FILES=,BUFFERS=,PATH=,etc.)
              Panel shown only if parameter
              value is to be changed.
                        │
                        V
              RETURN TO DOS
              REBOOT
              selection panel
```

Figure 17.   PCLP 1.3 Installation Utility flowchart

6.1.1.1   *Installing Base Services disk based machines.*

To install Base Services disk based machines, you need to:

• Select level of function: BASE SERVICES ONLY.

• Select type of BASE SERVICES station:

- REDIRECTOR

- RECEIVER

- MESSENGER

- SERVER

- Specify path where DOS is installed..

- Select installation in Fixed Disk C:

  Only for REDIRECTOR, RECEIVER or MESSENGER. SERVER installs automatically in fixed disk.

- Specify machine id.

- Change PATH line if desired.

6.1.1.2 *Installing Base Services diskette based machines.*

There are three alternative methods to doing this:

1. Using the PCLP installation utility with a machine with a fixed disk and two diskette drives.

2. Using the PCLP installation utility, install temporarily in the fixed disk and after copy to diskettes.

3. Use the Administration Services MANAGE-IMAGE function.

Installing Base Services diskette based machines with the Installation Utility.

A machine with fixed disk and two diskette drives is required. If you are using 360KB diskettes, have a blank formatted diskette available for copying the PCLP files if original diskette doesn't have enough space.

To create diskettes for using in Base Services diskette based machines, you need to:

- Select level of function: BASE SERVICES ONLY.

- Select type of BASE SERVICES station

  - REDIRECTOR

  - RECEIVER

  - MESSENGER

- Specify path where DOS is installed..

- Select installation in Diskette drive B:

- Specify machine id.

- Change PATH line if desired.

Installing Base Services diskette based machines from a fixed disk.

If a machine with fixed disk and two diskette drives is not available then you can use the following procedure in a machine with one diskette drive and fixed disk:

1. Prepare a diskette with DOS and LAN device drivers.

2. Backup CONFIG.SYS, AUTOEXEC.BAT and PCLP13BS directory.

3. Delete the files located in PCLP13BS directory.

4. Install BASE SERVICES station in fixed disk using installation utility.

5. Copy CONFIG.SYS, AUTOEXEC.BAT and all the files included in the PCLP13BS directory into diskette.

6. Edit CONFIG.SYS and AUTOEXEC.BAT diskette files and change the references of C: drive and the path statement. Add additional DOS files into the diskette if required.

7. Delete the files located in PCLP13BS directory and restore the backup files from step 2.

8. If additional copies of Base Services diskette are needed, DISKCOPY this diskette and edit the AUTOEXEC.BAT file, changing the workstation name specified in the NET START line.

If you are working with 360KB diskettes, all the required modules may not fit in only one diskette. In this case, use two diskettes; one with DOS and one with PCLP files. Edit the AUTOEXEC.BAT of DOS diskette in order to include a message and a pause for switching diskettes. Also copy the AUTOEXEC.BAT and COMMAND.COM files to the PCLP diskette.

Installing Base Services diskette based machines using MANAGE-IMAGE function.

If you have installed Extended Services Servers, you can use the MANAGE-IMAGE function of Administration Services. You must construct image definition files for redirector, receiver and messenger stations and use the MANAGE-IMAGE-Make Diskette Image function to create the diskettes. Examples for these image definition files are included in the RIPL section of this chapter.

6.1.1.3 *Installing Extended Services disk based machines.*

To install Extended Services disk based machines you need to:

- Select level of function: EXTENDED SERVICES

- Select type of station:

  - WORKSTATION for receiver and redirector stations.

  - SERVER for Domain Controllers and Additional Servers.

    For workstations you need to specify:

    ▲ SEND MESSAGES for redirector workstations.

    ▲ SEND, RECEIVE and LOG MESSAGES for receiver workstations.

- Specify path where DOS is installed.

- Specify machine id and name of Domain Controller.

  For Domain Controller machine, specify the same name for the machine id and Domain Controller id.

- Change FILES and PATH lines if desired.

6.1.1.4 Installing Extended Services diskette based machines.

To create diskettes for receiver or redirector Extended Services workstations you should use the MANAGE-IMAGE function of the Administrator Services in a previously installed Domain Controller machine.

The MANAGE-IMAGE function provides the facilities to create LAN boot-up diskettes for using in Base or Extended Services workstations.

The standard definition files provide support for Extended Services redirector workstations. You need to create your own image definition and AUTOEXEC.BAT files for Extended Services receiver.

```
;Definition file for Extended Services Redirector Workstation.
;Specify in the following line the diskette format.
5.25/360K
?:\PCLP13XS\IMAGES\STD_CFG.SYS CONFIG.SYS
?:\PCLP13XS\IMAGES\STD_AUT.BAT AUTOEXEC.BAT
?:\PCLP13XS\IMAGES\STD_SET.BAT SETENV.BAT
?:\PCLP13XS\NET1_30\SMDISP.EXE
?:\PCLP13XS\NET1_30\XSRW.SM
?:\PCLP13XS\NET1_30\NET.COM
?:\PCLP13XS\NET1_30\NETBIOS.COM
?:\PCLP13XS\NET1_30\NETWORK.MSG
?:\PCLP13XS\NET1_30\NETWORK1.CMD
?:\PCLP13XS\NET1_30\REDIR.EXE
?:\PCLP13XS\NET1_30\REDIRIFS.EXE
?:\PCLP13XS\DOS\VDISK.SYS
```

Figure 18. Extended Services Redirector Definition File (STD5_360.DEF): Standard definition file included in C:\PCLP13XS\IMAGES directory.

```
;Definition file for Extended Services Receiver Workstation.
;Specify in the following line the diskette format.
5.25/360K
?:\PCLP13XS\IMAGES\STD_CFG.SYS CONFIG.SYS
?:\PCLP13XS\IMAGES\XSREC.BAT AUTOEXEC.BAT
?:\PCLP13XS\IMAGES\STD_SET.BAT SETENV.BAT
?:\PCLP13XS\NET1_30\SMDISP.EXE
?:\PCLP13XS\NET1_30\XSRW.SM
?:\PCLP13XS\NET1_30\NET.COM
?:\PCLP13XS\NET1_30\NETBIOS.COM
?:\PCLP13XS\NET1_30\NETWORK.MSG
?:\PCLP13XS\NET1_30\NETWORK1.CMD
?:\PCLP13XS\NET1_30\REDIR.EXE
?:\PCLP13XS\NET1_30\REDIRIFS.EXE
?:\PCLP13XS\DOS\VDISK.SYS
?:\PCLP13XS\NET1_30\RECEIVER.COM
```

Figure 19. Extended Services Receiver Definition File (XSREC.DEF)

```
@ECHO OFF
REM
REM   PC-LAN Extended Services - Diskless workstation AUTOEXEC.BAT
REM   ----------------------------------------------------------------

CALL SETENV.BAT #####B
SET PATH=
SET PANS=/L: A:\XSRW.SM

SMDISP  cwsm1 /N %PANS%
IF ERRORLEVEL 1 GOTO OUT

NET START RDR %XSRW% /XS  >NUL
IF ERRORLEVEL 1 GOTO FAILED
    ECHO PC-LAN Program Started
    GOTO NETUSE

REM     Net Start Failed
: FAILED
SMDISP cwse1 %PANS%
GOTO OUT

REM     Use Programs Fileset
: NETUSE
SMDISP cwsm2 %PANS%
IF ERRORLEVEL 1 GOTO OUT
: REUSE
NET USE %XSPD%: \\%XSRS%\IBMXS  >NUL
IF NOT ERRORLEVEL 1 GOTO END
SMDISP /W:10 cwsw1 %PANS%
IF ERRORLEVEL 1 GOTO OUT
GOTO REUSE

: END
SET PANS=
%XSPD%:\NET1_30\XSRW.BAT %XSDC%
: OUT
SET PANS=
```

Figure 20. Extended   Services   Redirector   **AUTOEXEC.BAT**   File
(**STD_AUT.BAT**): Standard   definition   file   included   in
C:\PCLP13XS\IMAGES.The # character represents the tilde character (ASCII
code 126). '#####B' is a internal variable of RIPL process.

```
@ECHO OFF
REM
REM   PC-LAN Extended Services - Receiver workstation AUTOEXEC.BAT
REM   -----------------------------------------------------------

CALL SETENV.BAT #####B
SET PATH=
SET PANS=/L: A:\XSRW.SM

SMDISP cwsm1 /N %PANS%
IF ERRORLEVEL 1 GOTO OUT

NET START RCV %XSRW% /XS > NUL
IF ERRORLEVEL 1 GOTO FAILED
    ECHO PC-LAN Program Started
    GOTO NETUSE

REM   Net Start Failed
: FAILED
SMDISP cwse1 %PANS%
GOTO OUT

REM   Use Programs Fileset
: NETUSE
SMDISP cwsm2 %PANS%
IF ERRORLEVEL 1 GOTO OUT
: REUSE
NET USE %XSPD%: \\%XSRS%\IBMXS > NUL
IF NOT ERRORLEVEL 1 GOTO END
SMDISP /W:10 cwsw1 %PANS%
IF ERRORLEVEL 1 GOTO OUT
GOTO REUSE

: END
SET PANS=
%XSPD%:\NET1_30\XSRW.BAT %XSDC%
: OUT
SET PANS=
```

Figure 21. Extended Services Receiver AUTOEXEC.BAT File (XSREC.BAT): The #
character represents the tilde character (ASCII code 126). '#####B' is a internal
variable of RIPL process.

```
rem Set leaves leading & trailing spaces on the variable.
rem This upsets things like 'copy %xslstd%\x y'. However, PATH strips them.
rem So pass our tilde things through path!!!
path = DSKT0A
SET xsrw = %path%
path = STD5_360
SET xsimage = %path%
path = DOM0B
SET xsrs = %path%
path = DOM0B
SET xsdc = %path%
SET xslstd = %1
IF %1 = = D SET xspd = B
IF %1 = = E SET xspd = C
IF %1 = = F SET xspd = D
IF %1 = = G SET xspd = E
IF %1 = = H SET xspd = F
IF %1 = = I SET xspd = G
IF %1 = = J SET xspd = H
IF %1 = = K SET xspd = I
IF %1 = = L SET xspd = J
IF %1 = = M SET xspd = K
IF %1 = = N SET xspd = L
IF %1 = = O SET xspd = M
IF %1 = = P SET xspd = N
IF %1 = = Q SET xspd = O
IF %1 = = R SET xspd = P
IF %1 = = S SET xspd = Q
IF %1 = = T SET xspd = R
IF %1 = = U SET xspd = S
IF %1 = = V SET xspd = T
IF %1 = = W SET xspd = U
IF %1 = = X SET xspd = V
IF %1 = = Y SET xspd = W
IF %1 = = Z SET xspd = X
path = WS
SET xstype = %path%
```

Figure 22. Standard file for setting environment (STD_SET.BAT): Standard definition file included in C:\PCLP13XS\IMAGES.The # character represents the tilde character (ASCII code 126). '#####B' is a internal variable of RIPL process.

6.2 Installing RIPL workstations.

6.2.1 Hardware installation.

To enable RIPL capability of PC or PS/2 machines you need to:

1. Activate the RIPL feature in the LAN adapters.

   - Token-Ring PC Adapter.
   - Token-Ring PC Adapter II.
   - Token-Ring Trace and Performance PC Adapter.

   Plug in the 24 pin
   EPROM P/N 83X7839 (RPQ 8Q0561). The shared RAM address should be D800. Set the adapter switches accordingly.

   - Token-Ring Adapter/A.
   - Token-Ring Trace and Performance Adapter/A.

   Plug in the 28 pin EPROM P/N 83X8881. The shared RAM address is configurable using the reference diskette.

   - PC Network Adapter II.
   - PC Network Adapter II - Frequency 2.
   - PC Network Adapter II - Frequency 3.
   - PC Network Baseband Adapter.

   Plug jumper W6 in pins 2-3.

   - PC Network Adapter.

   Remove jumper W1.

   - PC Network Adapter II/A.
   - PC Network Baseband Adapter/A.
   - PC Network Adapter II - Frequency 2/A.
   - PC Network Adapter II - Frequency 3/A.

   Enable using Reference diskette.

2. If the machine has fixed disks, disable the boot record using the program **PCLPSRPL**. The **PCLPSRPL** program is located in the diskette 0 of PCLP. To run this program just insert the PCLP diskette 0 in your drive A: and type:

   A:\PCLPSRPL /E.   To disable the boot record. Booting from the fixed disk will no longer be available.

   A:\PCLPSRPL /D.   To re-enable the boot record. The machine will now boot from its fixed disk.

6.2.2 PCLP RIPL support.

The following table specifies the type of workstations that different types of PCLP RIPL Servers support:

RIPL SERVER						
ADAPTER	Any Token Ring	Any PC Network Baseband	Any PC Network II or /A	Any PC Network II or /A	PC Network Adapter	PC Network Adapter
LAN DRIVER	DXMC0MOD DXMC1MOD	DXMG0MOD DXMG1MOD	DXMG0MOD DXMG1MOD	Protocol driver	DXMG2MOD	Original Protocol
Any Token-Ring Adapter	YES	N/A	N/A	N/A	N/A	N/A
Any PC Network Baseband Adapter	N/A	YES	N/A	N/A	N/A	N/A
Any PC Network II or /A	N/A	N/A	YES	NO	NO	NO
PC Network Adapter	N/A	N/A	NO	YES	NO	YES

(Left side vertical label: WORKSTATION ADAPTER)

NOTES:

YES   Configuration supported.

NO   Configuration not supported.

N/A   Not Applicable. Different type of LANs.

Figure 23.   PCLP RIPL Support.

6.2.3   RIPL Basics

6.2.3.1   RIPL Process

For a better understanding of RIPL, here follows a general description of its process.

When a machine with the RIPL feature enable is switched on, it first runs the internal diagnostics. After this, the machine attempts to IPL from diskette drive A:. If no diskette drive is available or no diskette is inserted in the diskette drive, the machine tries to IPL from fixed disk. If no fixed disk is available or the boot record of the fixed disk has been disabled using the PCLPSRPL program, the machine transfers control to the load requester program included in the ROM/EPROM in the LAN adapters. This program sends network messages in order to establish communication with a RIPL server.

The RIPL Server has a Loader program running (DLCSERV for 802.2 networks or NETSERV for PC Network original protocol) that receives the load requester messages and answers accordingly. It also has the image files. These special structure files contain all the information included in a booting diskette (Boot record, FAT, root directory entries, IBMBIO.COM, IBMDOS.COM, COMMAND.COM, CONFIG.SYS, AUTOEXEC.BAT and additional files). Each RIPL workstation has associated with it one image file in a RIPL server. If 802.2 protocol is used, the RIPL Server requires two additional SAPs (HEX FC and F8) and two additional links that are used in the load requester program.

For all the LAN adapters except the PC Network, these links are used to download the LSP drivers to the RIPL workstation. Then the NETBIOS driver (DXMT0MOD) is activated and the adapter is opened. The PC Network Adapter does not need to load the NETBIOS driver because it is included in its ROM. After this, the RIPL workstation attempts to establish a session with the RIPL Server.

When a NETBIOS session is established between the RIPL Server and the RIPL Workstation, a disk emulator program in the RIPL Workstation is activated and all the diskette requests are redirected to the RIPL server into the image file. Next, the RIPL workstation begins the standard IPL process from diskette A:, but this diskette is now the image file stored in the RIPL server. The boot record, IBMBIO.COM, IBMDOS.COM, CONFIG.SYS device drivers, and COMMAND.COM are loaded and the AUTOEXEC.BAT executed.

At the end of the RIPL process, the RIPL workstation runs a program (RPLTERM) that ends the session between the RIPL workstation and RIPL server and restores the BIOS diskette management routines.

The load requester program included in the EPROM of the Token-Ring, PC Network Baseband and PC Network II adapters uses a subset of the IEEE 802.2 LLC protocol. In this case the RIPL server needs to have the LSP program loaded and the DLCSERV program running.

The load requester program included in the ROM of the original PC Network adapter uses the original NETBIOS protocol, thus the RIPL server needs to have a PC Network adapter without device drivers or a PC Network adapter II with protocol driver and the NETSERV program running.

6.2.3.2 Finding the LAN Adapter Address

The RIPL server needs to know the adapter address of the RIPL workstation in order to recognize it and associate it with the corresponding image file. For Token-Ring, when the RIPL machine is turned on, the screen immediately displays an adapter address, for example, AA-10015AB304C0, which is a valid address to use for the RIPL machine in the RIPL server. For PC Network Baseband, when the RIPL machine is turned on, the screen appears blank, except for the time, which is displayed in the upper right hand corner. To display the screen, press the following 3 keys together: SHIFT-CTRL-ESC. The AA address shown is the correct address.

For PC Network II adapters, when the machine is turned on, the screen immediately displays the adapter address AA-0800A510109C, but in this case the address shown is symmetrically 'bit-swapped'. The adapter address is a 6 bytes number. To 'unswap' the address you need to take each byte and exchange the bits 1 and 8, 2 and 7, 3 and 6, and the bits 4 and 5. For example, the AA-0800A510109C, must be recalculated, and becomes 1000A5080839, which is used as the RIPL address (see Figure 26 on page 54).

The load requester program of the PC Network Adapter doesn't show the adapter address. You can get the adapter address in the screen of the RIPL workstation only if an RIPL

server using the original protocol or the protocol driver is active in the network when a RIPL is attempted.

```
ET-00:00:45
ID-166


BU-0000
AA-10015AB304C0
AL-00 0000 B001253
BL-00112233
MM-CC00 02
SR-D800 08
OP-0000


RQ-0001
SF-0001
SN-0023
DS-0080
RS-0040
PC-4020
AC-0040 0000 0000 0000
```

Figure 24. **Token Ring RIPL Requesting Device Screen Sample:** The values showed in the sample screen are for example only. The adapter address(AA) is 10015AB304C0.

```
ET-00:00:45
ID-30 01 00

AS-83
BL-0077
MM-CC00 02
AA-08 00 A5 10 10 9C

RQ-0001
F0-0000
SF-0000
DR-0000
LR-0000
AT-0000
SN-00000000

FE-0000
DE-0000
LE-0000
TR-0000

PC-00 0000
```

Figure 25. **PC Network II RIPL Requesting Device Screen Sample:** The values shown in the sample screen are for example only. The RIPL adapter address must be calculated as 1000A5080839.

AA LINE ADDRESS						
BYTE	1	2	3	4	5	6
HEX	0 8	0 0	A 5	1 0	1 0	9 C
BINARY	0000 1000	0000 0000	1010 0101	0001 0000	0001 0000	1001 1100
BIT POSITION SWAP	1234 5678	1234 5678	1234 5678	1234 5678	1234 5678	1234 5678
BINARY	0001 0000	0000 0000	1010 0101	0000 1000	0000 1000	0011 1001
HEX	1 0	0 0	A 5	0 8	0 8	3 9
REAL ADAPTER ADDRESS						
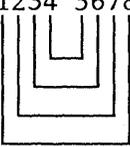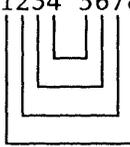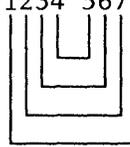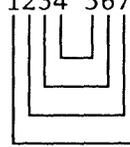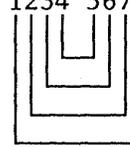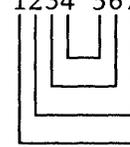
Figure 26. Example of symmetrical bit swapping of PC Network II adapters   he Requesting Device Screen

6.2.4 Defining RIPL workstations.

Before defining a RIPL workstation, you need to:

- Know the adapter address.

- Know if the RIPL workstation has an XMA card installed. If so, the server will send the module of the LAN Support Program required to support 3270 Workstation Program. (ie. DXM-1MOD.SYS)

- Define the RIPL servers using the MANAGE-MACHINES function of Administration Services, specifying that the server will support RIPL.

- Modify the existing Domain Controller definition using the MANAGE-MACHINES function of Administration Services, if the Domain Controller is to be a RIPL server

- Define additional images if required, using the MANAGE-IMAGE function of Administration Services. If additional files are created for inclusion in these images, copy the files into the \PCLP13XS\IMAGES directory of ALL the RIPL servers.

- Reboot the Domain Controller and all the RIPL servers. Check if the RIPL program has started properly. Due to memory constraints, perhaps your logon screen doesn't appear, or a warning message is showing informing that not enough memory is available to execute all the PCLP functions. In this case you could make a choice between the following options:

  1. Reduce the resident programs size. You can:

     - Reduce the cache size or define the cache in extended memory if possible.

     - Reduce the NET START parameters /RQB, /PBx, /REQ, /SHR.

     - Delete the FASTOPEN instruction.

- Do not load other additional resident programs that you may have installed.

  If you reduce the NET START parameters, cache, or fastopen , the server performance will be impacted. Use this option only if the server needs to be non-dedicated and to use all the PCLP functions available.

2. Disable the keyboard and let the machine become dedicated.

3. Activate the keyboard and go to DOS or the logon screen with limited PCLP capability due to memory restriction. If you go to DOS, the server security will be lost. This would not be desirable in some installations.

- Log on using an administration id and define the RIPL workstations using the MANAGE-MACHINES function of Administration services. You should specify:

  - Machine id.

  - Description.

  - Adapter Address.

  - XMA card installed or not (for WSP support).

  - RIPL Server associated with this workstation.

  - Image file.

The RIPL function is machine based (relationship between RIPL server and RIPL workstation machines) and not user or domain related. You can have the same RIPL workstation defined in different servers in the same or different domains. In this case, the first RIPL server to establish the link or NETBIOS session with the RIPL workstation provides the service.

6.2.5 Extended Services RIPL Workstations.

PCLP 1.3 includes definition files in different diskette formats for Redirector Extended Services Workstations. Image definition files for Receiver Workstations have been explained in the 'Installing Extended Services Diskette Based' section of this chapter.

When you use these definition files, an alternate image facility is provided. After booting the RIPL workstation, the logon screen appears; the user can now select any of the image files available in their related RIPL server and reboot again using the image specified.

If your installation needs to restrict the access for image files, different RIPL servers should be defined; one for each workstation image set.

6.2.6 Base Services RIPL Workstations.

For RIPL Base Services Workstations you need to define an Extended Service server with RIPL capability. Base Services servers do not have RIPL capability. The following file definition examples assume that the RIPL workstations will access the PCLP13BS directory of the RIPL server and that a BAT file for each workstation is defined. These BAT files define the default LAN resources and the application to be loaded during the IPL process. Then you need to:

- Include in \PCLP13BS\EXTERNAL.BAT file for the RIPL server the following lines:

  - NET SHARE PCLP13BS = C:\PCLP13BS

  - NET SHARE RPLBAT = C:\RPLBAT password

- Additional NET SHARE commands for shared directories and printers used by Base Services workstations and external filesets and printers used by Extended Services users.

• Define a BAT file for each workstation in the C:\RPLBAT directory. The name of this BAT file should be the workstation name used in MANAGE-MACHINES definition in Administrator Services. This BAT file must include all the NET USE the workstations will do and their profile.

Examples for definition, AUTOEXEC.BAT and CONFIG.SYS files for each type of workstation are shown below.

6.2.6.1 Base Services Redirector

```
;Definition file for Base Services Redirector Workstation.
;Any type of diskette formats are supported
5.25/360K
?:\PCLP13XS\IMAGES\REDIRECT.SYS CONFIG.SYS
?:\PCLP13XS\IMAGES\REDIRECT.BAT AUTOEXEC.BAT
?:\PCLP13XS\IMAGES\STD_SET.BAT SETENV.BAT
?:\PCLP13BS\NET.COM
?:\PCLP13BS\NETBIOS.COM
?:\PCLP13BS\NETWORK.MSG
?:\PCLP13BS\NETWORK1.CMD
?:\PCLP13BS\NETWORK2.CMD
?:\PCLP13BS\REDIR.EXE
?:\PCLP13BS\REDIR.SYS
?:\PCLP13BS\REDIRIFS.EXE
?:\PCLP13XS\NET1_30\RPLTERM.EXE
?:\PCLP13XS\DOS\KEYBOARD.SYS
?:\PCLP13XS\DOS\COUNTRY.SYS
?:\PCLP13XS\DOS\KEYB.COM
```

Figure 27. Base Services Redirector definition File (REDIRECT.DEF)

```
@ECHO OFF
REM
REM   PC-LAN Base Services - Diskless workstation AUTOEXEC.BAT
REM   --------------------------------------------------------
PATH=#####B
SET LD=%PATH%
CALL SETENV.BAT %LD%
NET START RDR %XSRW%
IF ERRORLEVEL 1 GOTO OUT2
ECHO PC-LAN Program Started
NET USE %LD%: \\%XSRS%\PCLP13BS > NUL
IF ERRORLEVEL 1 GOTO OUT
PATH %LD%:
%LD%:
NET USE %XSPD%: \\%XSRS%\RPLBAT password > NUL
IF ERRORLEVEL 1 GOTO OUT
CALL %XSPD%:%XSRW%
NET USE %XSPD%: /D > NUL
IF ERRORLEVEL 1 GOTO OUT
GOTO EXIT

: OUT
ECHO SERVER RESOURCES NOT AVAILABLE
GOTO EXIT

: OUT2
ECHO NET START FAILS

: EXIT
A:\RPLTERM
```

Figure 28. Base Services Redirector AUTOEXEC.BAT File (REDIRECT.BAT): The #
character represents the tilde character (ASCII code 126). '#####B' is an
internal variable of the RIPL process.

```
FILES = 20
COUNTRY = 001,437,A:\COUNTRY.SYS
LASTDRIVE = #####B
FCBS = 16,8
```

Figure 29. Base Services Redirector CONFIG.SYS File (REDIRECT.SYS): The # character represents the tilde character (ASCII code 126). '#####B' is an internal variable of the RIPL process.

6.2.6.2 Base Services Receiver

```
;Definition file for Base Services Receiver-Messenger/NSI Workstation.
;Any type of diskette formats are supported
5.25/360K
?:\PCLP13XS\IMAGES\RECEIVER.SYS CONFIG.SYS
?:\PCLP13XS\IMAGES\RECEIVER.BAT AUTOEXEC.BAT
?:\PCLP13XS\IMAGES\STD_SET.BAT SETENV.BAT
?:\PCLP13BS\NET.COM
?:\PCLP13BS\NETBIOS.COM
?:\PCLP13BS\NETWORK.MSG
?:\PCLP13BS\NETWORK1.CMD
?:\PCLP13BS\NETWORK2.CMD
?:\PCLP13BS\REDIR.EXE
?:\PCLP13BS\REDIR.SYS
?:\PCLP13BS\RECEIVER.COM
?:\PCLP13BS\REDIRIFS.EXE
?:\PCLP13XS\NET1_30\RPLTERM.EXE
?:\PCLP13XS\DOS\KEYBOARD.SYS
?:\PCLP13XS\DOS\COUNTRY.SYS
?:\PCLP13XS\DOS\KEYB.COM
```

Figure 30. Base Services Receiver definition File (RECEIVER.DEF)

```
@ECHO OFF
REM
REM    PC-LAN Base Services - Diskless workstation AUTOEXEC.BAT
REM    ---------------------------------------------------------------
PATH = #####B
SET LD = %PATH%
CALL SETENV.BAT %LD%
NET START RCV %XSRW%
IF ERRORLEVEL 1 GOTO OUT2
ECHO PC-LAN Program Started
NET USE %LD%: \\%XSRS%\PCLP13BS > NUL
IF ERRORLEVEL 1 GOTO OUT
PATH %LD%:
%LD%:
NET USE %XSPD%: \\%XSRS%\RPLBAT password > NUL
IF ERRORLEVEL 1 GOTO OUT
CALL %XSPD%:%XSRW%
NET USE %XSPD%: /D > NUL
IF ERRORLEVEL 1 GOTO OUT
GOTO EXIT

: OUT
ECHO SERVER RESOURCES NOT AVAILABLE
GOTO EXIT

: OUT2
ECHO NET START FAILS

: EXIT
A:\RPLTERM
```

**Figure 31. Base Services Receiver AUTOEXEC.BAT File (RECEIVER.BAT): The #
character represents the tilde character (ASCII code 126). '#####B' is an
internal variable of the RIPL process.**

```
FILES = 20
COUNTRY = 001,437,A:\COUNTRY.SYS
LASTDRIVE = #####B
FCBS = 16,8
```

Figure 32. Base Services Receiver CONFIG.SYS File (RECEIVER.SYS): The # character represents the tilde character (ASCII code 126). '#####B' is an internal variable of the RIPL process.

6.2.6.3 Base Services Messenger without resident menus (/NSI)

```
;Definition file for Base Services Receiver-Messenger/NSI Workstation.
;Any type of diskette formats are supported
5.25/360K
?:\PCLP13XS\IMAGES\MSGNSI.SYS CONFIG.SYS
?:\PCLP13XS\IMAGES\MSGNSI.BAT AUTOEXEC.BAT
?:\PCLP13XS\IMAGES\STD_SET.BAT SETENV.BAT
?:\PCLP13BS\NET.COM
?:\PCLP13BS\NETBIOS.COM
?:\PCLP13BS\NETWORK.MSG
?:\PCLP13BS\NETWORK1.CMD
?:\PCLP13BS\NETWORK2.CMD
?:\PCLP13BS\REDIR.EXE
?:\PCLP13BS\REDIR.SYS
?:\PCLP13BS\RECEIVER.COM
?:\PCLP13BS\REDIRIFS.EXE
?:\PCLP13XS\NET1_30\RPLTERM.EXE
?:\PCLP13XS\DOS\KEYBOARD.SYS
?:\PCLP13XS\DOS\COUNTRY.SYS
?:\PCLP13XS\DOS\KEYB.COM
```

Figure 33.   Base Services Messenger definition File (MSGNSI.DEF)

```
@ECHO OFF
REM
REM   PC-LAN Base Services - Diskless workstation AUTOEXEC.BAT
REM   -------------------------------------------------------------
PATH=#####B
SET LD=%PATH%
CALL SETENV.BAT %LD%
NET START MSG %XSRW% /NSI
IF ERRORLEVEL 1 GOTO OUT2
ECHO PC-LAN Program Started
NET USE %LD%: \\%XSRS%\PCLP13BS > NUL
IF ERRORLEVEL 1 GOTO OUT
PATH %LD%:
%LD%:
NET USE %XSPD%: \\%XSRS%\RPLBAT password > NUL
IF ERRORLEVEL 1 GOTO OUT
CALL %XSPD%:%XSRW%
NET USE %XSPD%: /D > NUL
IF ERRORLEVEL 1 GOTO OUT
GOTO EXIT

: OUT
ECHO SERVER RESOURCES NOT AVAILABLE
GOTO EXIT

: OUT2
ECHO NET START FAILS

: EXIT
A:\RPLTERM
```

**Figure 34.   Base Services Messenger AUTOEXEC.BAT File (MSGNSI.BAT):   The #
character represents the tilde character (ASCII code 126).   '#####B' is an
internal variable of the RIPL process.**

```
FILES = 20
COUNTRY = 001,437,A:\COUNTRY.SYS
LASTDRIVE = #####B
FCBS = 16,8
```

Figure 35. Base Services Messenger CONFIG.SYS File (MSGNSI.SYS): The # charac-
ter represents the tilde character (ASCII code 126). '#####B' is an internal
variable of the RIPL process.

6.2.6.4 Base Services Messenger.

```
;Definition file for Base Services Messenger Workstation.
;360KB diskette format are not supported
3.5/720K
?:\PCLP13XS\IMAGES\MESSENGER.SYS CONFIG.SYS
?:\PCLP13XS\IMAGES\MESSENGER.BAT AUTOEXEC.BAT
?:\PCLP13XS\IMAGES\STD_SET.BAT SETENV.BAT
?:\PCLP13BS\NET.COM
?:\PCLP13BS\NETBIOS.COM
?:\PCLP13BS\NETWORK.MSG
?:\PCLP13BS\NETWORK1.CMD
?:\PCLP13BS\NETWORK2.CMD
?:\PCLP13BS\NETWORK1.SCN
?:\PCLP13BS\REDIR.EXE
?:\PCLP13BS\REDIR.SYS
?:\PCLP13BS\RECEIVER.COM
?:\PCLP13BS\REDIRIFS.EXE
?:\PCLP13XS\NET1_30\RPLTERM.EXE
?:\PCLP13XS\DOS\KEYBOARD.SYS
?:\PCLP13XS\DOS\COUNTRY.SYS
?:\PCLP13XS\DOS\KEYB.COM
```

Figure 36. Base Services Messenger definition File (MESSENGE.DEF)

```
@ECHO OFF
REM
REM   PC-LAN Base Services - Diskless workstation AUTOEXEC.BAT
REM   ---------------------------------------------------------
PATH = #####B
SET LD = %PATH%
CALL SETENV.BAT %LD%
NET START MSG %XSRW%
IF ERRORLEVEL 1 GOTO OUT2
ECHO PC-LAN Program Started
NET USE %LD%: \\%XSRS%\PCLP13BS > NUL
IF ERRORLEVEL 1 GOTO OUT
PATH %LD%:
%LD%:
NET USE %XSPD%: \\%XSRS%\RPLBAT password > NUL
IF ERRORLEVEL 1 GOTO OUT
CALL %XSPD%:%XSRW%
NET USE %XSPD%: /D > NUL
IF ERRORLEVEL 1 GOTO OUT
GOTO EXIT

: OUT
ECHO SERVER RESOURCES NOT AVAILABLE
GOTO EXIT

: OUT2
ECHO NET START FAILS

: EXIT
A:\RPLTERM
```

Figure 37. **Base Services Messenger AUTOEXEC.BAT File (MESSENGE.BAT):**   The #
character represents the tilde character (ASCII code 126).   '#####B' is an
internal variable of the RIPL process.

```
FILES = 20
COUNTRY = 001,437,A:\COUNTRY.SYS
LASTDRIVE = #####B
FCBS = 16,8
```

The # character represents the tilde character (ASCII code 126).   '#####B' is an internal
variable of the RIPL process.

Figure 38. **Base Services Messenger CONFIG.SYS File (MESSENGE.SYS)**

6.3 Tailoring NET START parameters.

After installing the PCLP, a default customization of PCLP 1.3 NET START and LSP DXMT0MOD device driver is set up. In some cases, the default parameters don't match the network requirements and parameters need to be redefined. In this section, NET START parameters will be described in detail.

6.3.1 NET START Parameters Values.

The following tables show the different parameters of the NET START command, their availability for each configuration and their default value. Following the tables, the meaning of each NET START parameter is explained.

PARAMETER	REDIRECTOR RDR	RECEIVER RCV	MESSENGER MSG	SERVER SRV
/XS	X	X		X
/SRV (*)	X	X	X	X
/ASG	X	X	X	X
/SES	X	X	X	X
/CMD	X	X	X	X
/NBC	X	X	X	X
/NBS	X	X	X	X
/PB1	X	X	X	X
/PB2	X	X	X	X
/PB3	X	X	X	X
/NSI			X	X
/MBI			X	X
/TSI			X	X
/USN			X	X
/CAC (*)				X
/EXM (*)				X
/REQ				X
/RQB				X
/SHB				X
/SHL				X
/PRB				X
/PC1				X
/PC2				X
/PC3				X
/PRP				X
/SHR (*)				X
/RDR (*)				X

Figure 39. Parameters allowed in each PCLP configuration, regardless of level of 'services' loaded.

NOTES:

(*)   These are the parameters which most commonly need to be customized.

BASE SERVICES REDIRECTOR PARAMETERS			
NET START RDR name			
PARAMETER	DEFAULT	MINIMUM	MAXIMUM (1)
/SRV	2	1	31
/ASG	5	1	32
/SES	6	MAX(/SRV+1,6)	254 (2)
/CMD	8	2	254 (2)
/NBC	4 (3)	1	64 (4)
/NBS	4K	512	32K (4)
/PB1	1024 (5)	80	16K (6)
/PB2	128	80	16K (6)
/PB3	128	80	16K (6)

Figure 40.   Values for Base Services Redirector station parameters

NOTES:

(1)   The size of a redirector configuration must not exceeded 64KB.

(2)   This number is limited by NETBIOS adapter driver.

   •   32 sessions and 32 commands for PC NETWORK original ROM driver.

   •   64 sessions and 32 commands for Protocol driver.

   •   254 sessions and commands with LSP DXMT0MOD driver.

(3)   Default is 2 if computer memory is less than 128KB.

(4)   /NBC multiplied by /NBS must be less or equal to 32KB.

(5)   Default is 512 if computer memory is less than 128KB.

(6)   Do not specify a higher value than /RQB parameter in the server machine. If you specify a higher value, the additional memory won't be used.

BASE SERVICES RECEIVER PARAMETERS			
NET START RCV name			
PARAMETER	DEFAULT	MINIMUM	MAXIMUM
/SRV	2	1	31
/ASG	5	1	32
/SES	6	MAX(/SRV+2,6)	254 (1)
/CMD	8	4	254 (1)
/NBC	4 (2)	1	64 (3)
/NBS	4K	512	32K (3)
/PB1	1024 (4)	80	16K (5)
/PB2	128	80	16K (5)
/PB3	128	80	16K (5)

Figure 41. Values for Base Services Receiver station parameters

NOTES:

(1)   This number is limited by NETBIOS adapter driver.

- 32 sessions and 32 commands for PC NETWORK original ROM driver.

- 64 sessions and 32 commands for Protocol driver.

- Up to 254 sessions and commands with LSP DXMT0MOD driver.

(2)   Default is 2 if computer memory is less than 128KB.

(3)   /NBC multiplied by /NBS must be less or equal to 32KB.

(4)   Default is 512 if computer memory is less than 128KB.

(5)   Do not specify a higher value than /RQB parameter in the server machine. If you specify a higher value, the additional memory won't be used.

BASE SERVICES MESSENGER PARAMETERS NET START MSG name			
PARAMETER	DEFAULT	MINIMUM	MAXIMUM
/SRV	2	1	31
/ASG	5	1	32
/SES	MAX(6,/USN+/SRV+2)	MAX(6,/USN+/SRV+2)	254 (1)
/CMD	MAX(8,/USN+4)	/USN+4	254 (1)
/NBC	4 (2)	1	64 (3)
/NBS	4K	512	32K (3)
/PB1	1024 (4)	80	16K (5)
/PB2	128	80	16K (5)
/PB3	128	80	16K (5)
/NSI	–	–	–
/MBI	1750	512	60K (6)
/TSI	54	–	–
/USN	1	0	12

Figure 42. Values for Base Services Messenger station parameters

NOTES:

(1)   This number is limited by NETBIOS adapter driver.

• 32 sessions and 32 commands for PC NETWORK original ROM driver.

• 64 sessions and 32 commands for Protocol driver.

• Up to 254 sessions and commands with LSP DXMT0MOD driver.

(2)   Default is 2 if computer memory is less than 128KB.

(3)   /NBC multiplied by /NBS must be less or equal to 32KB.

(4)   Default is 512 if computer memory is less than 128KB.

(5)   Do not specify a higher value than /RQB parameter in the server machine. If you specify a higher value, the additional memory won't be used.

(6)   Specify 512 if NET LOG command will be used.

BASE SERVICES SERVER PARAMETERS			
NET START SRV name			
PARAMETER	DEFAULT	MINIMUM	MAXIMUM
/SRV	3	1	31
/ASG	5	1	32
/SES	MAX(6,/RDR+/USN+/SRV+2)	MAX(6,/RDR+/USN+/SRV+2)	254 (1)
/CMD	MAX(8,/REQ+/USN+5)	/REQ+/USN+5	254 (1)
/NBC	1	1	64 (2)
/NBS	1K	512	32K (2)
/PB1	1024	80	16K (3)
/PB2	128	80	16K (3)
/PB3	128	80	16K (3)
/NSI	—	—	—
/MBI	1750	512	60K (4)
/TSI	54	—	—
/USN	1	0	12
/CAC	112	0	(5)
/EXM	—	—	—
/REQ	6	1	6 (6)
/RQB	8K	512	32K (6)
/SHB	2K	512	60K (7)
/SHL	20	20	1000 (7)
/PRB	2K	512	16K
/PC1	/PRB	1	/PRB
/PC2	/PRB	1	/PRB
/PC3	/PRB	1	/PRB
/PRP	3	1	3
/SHR	5	1	999
/RDR	10	1	251

Figure 43. Values for Base Services Server station parameters

NOTES:

(1)   This number is limited by NETBIOS adapter driver.

- 32 sessions and 32 commands for PC NETWORK original ROM driver.

- 64 sessions and 32 commands for Protocol driver.

- Up to 254 sessions and commands with LSP DXMT0MOD driver.

(2)   /NBC multiplied by /NBS must be less or equal to 32KB.

(3)   Do not specify a higher value than /RQB parameter in the server machine. If you specify a higher value, the additional memory won't be used.

(4)   Specify 512 if NET LOG command will be used.

(5)   The maximum cache size depends of memory available in the system.

(6)   /REQ multiplied by /RQB must be less or equal to 48KB.

(7)   /SHB + /SHL*14 + length of SHARE DOS command should be less or equal to 64KB. If the SHARE program is running before NET START, the /SHB and /SHL are ignored.

EXTENDED SERVICES REDIRECTOR PARAMETERS			
NET START RDR name /XS			
PARAMETER	DEFAULT	MINIMUM	MAXIMUM (1)
/SRV	2	1	31
/ASG	29	1	32
/SES	MAX(6,2*/SRV+1)	MAX(6,2*/SRV+1)	254 (2)
/CMD	8	2	254 (2)
/NBC	4 (3)	1	64 (4)
/NBS	4K	512	32K (4)
/PB1	1024 (5)	80	16K (6)
/PB2	128	80	16K (6)
/PB3	128	80	16K (6)

Figure 44. Values for Extended Services Redirector station parameters

NOTES:

(1)   The size of redirector must not exceeded 64KB.

(2)   This number is limited by NETBIOS adapter driver.

- 32 sessions and 32 commands for PC NETWORK original ROM driver.

- 64 sessions and 32 commands for Protocol driver.

- 254 sessions and commands with LSP DXMT0MOD driver.

(3)   Default is 2 if computer memory is less than 128KB.

(4)   /NBC multiplied by /NBS must be less or equal to 32KB.

(5)   Default is 512 if computer memory is less than 128KB.

(6)   Do not specify a higher value than /RQB parameter in the server machine. If you specify a higher value, the additional memory won't be used.

EXTENDED SERVICES RECEIVER PARAMETERS			
NET START RCV name /XS			
PARAMETER	DEFAULT	MINIMUM	MAXIMUM
/SRV	2	1	31
/ASG	29	1	32
/SES	MAX(6,2*/SRV+2)	MAX(6,2*/SRV+2)	254 (1)
/CMD	8	4	254 (1)
/NBC	4 (2)	1	64 (3)
/NBS	4K	512	32K (3)
/PB1	1024 (4)	80	16K (5)
/PB2	128	80	16K (5)
/PB3	128	80	16K (5)

Figure 45. Values for Extended Services Receiver station parameters

NOTES:

(1)   This number is limited by NETBIOS adapter driver.

- 32 sessions and 32 commands for PC NETWORK original ROM driver.

- 64 sessions and 32 commands for Protocol driver.

- Up to 254 sessions and commands with LSP DXMT0MOD driver.

(2)   Default is 2 if computer memory is less than 128KB.

(3)   /NBC multiplied by /NBS must be less or equal to 32KB.

(4)   Default is 512 if computer memory is less than 128KB.

(5)   Do not specify a higher value than /RQB parameter in the server machine. If you specify a higher value, the additional memory won't be used.

| EXTENDED SERVICES SERVER PARAMETERS |
| NET START SRV name /XS | | | |
PARAMETER	DEFAULT	MINIMUM	MAXIMUM
/SRV	3	1	31
/ASG	10	1	32
/SES	MAX(6,2*/RDR+/SRV+3)	MAX(6,2*/RDR+/USN+/SRV+2)	254 (1)
/CMD	MAX(8,/RDR+/REQ+6)	/RDR+/REQ+/USN+5	254 (1)
/NBC	1	1	64 (2)
/NBS	512	512	32K (2)
/PB1	1024	80	16K (3)
/PB2	128	80	16K (3)
/PB3	128	80	16K (3)
/NSI	–	–	–
/MBI	512	512	60K
/TSI	26	–	–
/USN	1	1	1
/CAC	100	0	(4)
/EXM	–	–	–
/REQ	6	1	6 (5)
/RQB	8K	512	32K (5)
/SHB	2K	512	60K (6)
/SHL	20	20	1000 (6)
/PRB	512	512	16K
/PC1	/PRB	1	/PRB
/PC2	/PRB	1	/PRB
/PC3	/PRB	1	/PRB
/PRP	3	1	3
/SHR	32	1	999
/RDR	10	1	251

Figure 46. Values for Extended Services Server station parameters

NOTES:

(1) This number is limited by NETBIOS adapter driver.

- 32 sessions and 32 commands for PC NETWORK original ROM driver.

- 64 sessions and 32 commands for Protocol driver.

- Up to 254 sessions and commands with LSP DXMT0MOD driver.

(2) /NBC multiplied by /NBS must be less or equal to 32KB.

(3) Do not specify a higher value than /RQB parameter in the server machine. If you specify a higher value, the additional memory won't be used.

(4) The maximum cache size depends of memory available in the system.

(5) /REQ multiplied by /RQB must be less or equal to 48KB.

(6) /SHB + /SHL*14 + length of SHARE DOS command should be less or equal to 64KB. If the SHARE program is running before NET START, the /SHB and /SHL are ignored.

6.3.2 NET START Parameters Description and Extended Services Customization

The PCLP NET START command has the following format:

> **NET START** *configuration computername ffl|parameter" ffl..."*

The *configuration* values allowed are:
- RDR or REDIRECTOR.
- RCV or RECEIVER.
- MSG or MESSENGER.
- SRV or SERVER.

You should use the abbreviated form of the configuration parameter and specify **ONLY** the parameters whose values you wish to define differently to the default values. The DOS command line doesn't support more than 127 characters, so you do not have enough space to specify all the parameters.

A description for each parameter follows:

/XS   Specifies to start Extended Services. /NSI is automatically defined. /XS is automatically included in the NET START command when you install PCLP using the installation utility.

/SRV: n   Defines the maximum number of different servers that you can access using NET USE command. In all the Extended Services workstations available in the LAN, set this parameter using the following rule:

    1. Calculate the number of servers accessible from each domain. Just add the number of servers that are defined in the domain with the number of different external servers that the domain access via external fileset and external printer definitions.

    2. Set /SRV to the maximum number of servers accessible for all the domains defined in the LAN. if more than one domain is defined in the LAN add 1 (one) to the previous value.

    The rationale of this: When a user logs on at a workstation, this workstation will access the resources defined in a Domain plus the \PCLP13XS directory of any Extended Services server of the LAN, maybe in a different domain.

    For Extended Services servers, just assign the number of servers accessible in the domain to which it belongs.

/ASG: n   Defines the maximum number of NET USE commands active at one time. In Extended Services, the default guarantees that NET USE definitions from the A: drive to Z: drive (26 drive letters) and for LPT1, LPT2 and LPT3 (3 printer devices) could be active at one time. Therefore, use the default.

/SES: n   Defines the maximum number of NETBIOS sessions allowed. The default provides enough sessions to work properly. You only need to specify the SES parameter if an additional NETBIOS application will be run in the station. Remember: if you uses LSP, specify in the DXMT0MOD device driver pa-

rameter **S** the same value as the default or the value specified in the NET START /SES parameter.

/CMD: n Defines the maximum number of NETBIOS commands allowed. The default provides enough commands to work properly. You only need to specify the CMD parameter if an additional NETBIOS application will be run in the station. Remember: if you uses LSP, specify in the DXMT0MOD device driver parameter **C** the same value as the default or the value specified in the NET START /CMD parameter.

/NBC: n Defines the number of network buffers. This number should not be greater than the maximum number of remote files concurrently accessed over the network. Adjust the default if required.

/NBS: n Defines the maximum size of network buffer. Adjust the default if required.

/PBx: n Defines the maximum size of print buffer for accessing network printers. If LPT2 or LPT3 devices will be network printers, specify a higher value for /PB2 or /PB3 parameter. If you have enough memory and the network printer is heavily used, define this parameter equal to the /RQB parameter of the printer server.

/NSI If you specify this parameter, the PCLP base services menus will not be loaded resident in memory. This parameter only works with Base Services servers and messengers. If this option is specified nearly 50KB is saved. Specify this parameter if the Network Request Key (Ctrl + Alt + Break) will not be used. In this case, LAN messages will not be received to the display but will always be logged to a specified file or device.

/MBI: n Defines the size of messenger buffer. Use the default.

/TSI: fb Defines the time slice in units for foreground (f) and background (b) tasks. Use the default. For tuning purposes you can change this parameter, evaluate the change of the response time and adjust if better results are obtained.

/USN: n Defines the maximum number of additional names and forwarded names that you can have defined in the station at one time. The default and only valid value for Extended Services is one; use the default.

/CAC: n Defines the size of cache used for disk buffering. Specify 0 if IBMCACHE.SYS driver is being used or the server is basically a printer server. If IBMCACHE isn't being used, and the machine has extended memory, specify the size of extended memory area. If the server will be a RIPL server for 802.2 workstations, specify the cache size less the memory required to load partially the RIPL server program in extended memory. If no extended memory is available, you can use the default or specify a lower amount of memory if you need to reduce the memory requirement of PCLP.

/EXM Specifies that the cache area will be defined in extended memory. If this option is not specified, the cache is defined in the real (640KB) DOS area.

/REQ: n Defines the number of concurrent workstation requests that can be handled by the server. This should be less or equal to the /RDR parameter. The default provides the maximum value possible. In normal cases, use the default, since the higher value will provide the better response time. Only change this parameter if you make tuning tests and found that less /REQ and bigger /RQB provide a better response time in your environment, you need to reduce the memory requirements of PCLP or you have less-than 6 network stations.

/RQB: n Defines the maximum size of network requests. Use the default. Only change this parameter if you change the /REQ parameter or you need to reduce the memory requirements of PCLP.

/SHB: n Defines the size of file sharing buffer area. Each open file requires the length of the full file name plus 11 bytes. Specify a bigger size if more files are shared and the default area is not enough. This parameter is equivalent to the /F parameter of the DOS SHARE command. If the DOS SHARE command was executed before the NET START, this parameter is ignored.

/SHL: n Defines the maximum number of active locked ranges in shared files. Each lock uses 14 bytes. Specify a bigger number if more than 20 active locks occur at one time. This parameter is equivalent to the /L parameter of the DOS SHARE command. If the DOS SHARE command was executed before the NET START, this parameter is ignored.

/PRB: n Specify the size of the print buffer used by the PCLP spool program. Change the default and specify a bigger buffer size, if the server is basically a printer server or you are using a fast printer.

/PCx: n Defines the maximum number of characters to be sent from the print buffer to a printer in a single operation. Use the default for fast printing. Specify a value only if you need a better response time for the foreground tasks in the server at the expense of fast printer processing.

/PRP: n Defines the priority for printing the contents of the background print buffer. Change the default only if you need a better response time for the foreground tasks in the server, as above.

/SHR: n Defines the maximum number of devices that you can share at one time. Set this parameter to the number of the NET SHARE commands specified in the EXTERNAL.BAT file plus one for each Fileset with only one access right specified (Read or Update), plus 2 for each Fileset with both access rights specified (Read and Update), plus 4 (3 for sharing printer devices and one for share the C:\PCLP13XS directory). You can reduce this number if dynamic Filesets are defined, or merge Filesets if possible, locating the previous Filesets as subdirectories in the new merged Fileset. For example, if you have a Fileset defined with the C/2 compiler and a second Fileset with the PASCAL/2 compiler you can define a new Fileset COMPILER with two subdirectories, one with the C/2 compiler and one with the PASCAL/2 compiler.

You should set this parameter to the lowest value possible that still ensures a proper operation of the PCLP program, due to the memory required by the NET START command for each active NET SHARE.

/RDR: n Defines the maximum number of concurrent network stations that can use the server. The maximum value of this parameter is the number of servers defined in the domain (including the domain controller) plus the number of work-stations. You should specify the lowest number that ensures proper operation of PCLP, because link stations, sessions and commands are related to the RDR parameter; therefore the memory requirements and network resources for the server will increase accordingly.

7.0 Defining Your LAN Environment.

Defining Base Services is very similar to LAN 1.2, and we will cover this first; whereas Extended Services' under PCLP 1.3 is **not** similar to any of our previous products. We will therefore go through, step by step, how to set up and use both. First Base Services:

7.1.1 Base Services

In Base Services, resources are defined to be shared between machines, not users as in Extended Services. Nevertheless you can have Base Services installed on some machines and Extended Services on others. The LAN Administrator can share Extended Services resources with Base Services users by using **NETWORK COMMANDS** (NET SHARE for external resources), and providing specific access for each Extended Services user. This gives skilled users flexibility similar to that of IBM LAN 1.2 program.

As in IBM PC LAN 1.20, we first set up the servers for sharing devices and directories, and then set up the work stations.

For skilled users, it's easy to share or use the network resources. To use a network resource you have to ask the person who owns it to execute a NET SHARE command. You respond with a NET USE. These commands can be issued in two ways; either by network commands or through the menus.

Another way of sharing network resources in Base Services, is to make a batch file and execute it, in your AUTOEXEC.BAT, for instance.

Now let's see how you would set up Base Services to share resources (servers only).

To share a disk or directory on the network, follow these steps:

1. At the DOS prompt, type **NET**

2. Select **disk** or **directory tasks**

3. Select the setup tasks you want to do

   - Start sharing a disk or directory

   - Stop sharing a disk or directory.

   - **Note:** Passwords are optional.

4. Repeat step 2. to share each disk or directory you want to make available.

When you have finished setting up your machine, press **CTRL + HOME** to go back to the main menu.

To share a printer on the network, follow these steps:

5. Select **Printer Tasks**

6. Select the setup tasks you want to do

7. Repeat step 5. to share each printer you want to make available.

When you have finished, press **CTRL + HOME** to go back to the main menu.

8. Select **Print Queue Tasks**

9. Select **Start or Stop Printing a Separator Page**

    * Following the menus to start and stop separator page

    * **PQ.SEP** is stored in one of the following directories:

        a. If you install Base Services, **PQ.SEP** will be stored in \PCLP13BS.

        b. If you install Extended Services, **PQ.SEP** will be stored in \PCLP13XS\NET1_30.

            ▪ PQ.SEP file contains the layout of the separator page and whether there is going to be a separator page or not.

Press **CTRL + HOME** to go back to the main menu.

To do message functions follow these steps:

10. Select **Message Tasks** to set up to save (log) messages in a file.

11. Select the setup tasks you want to do and follow the menus

Press **CTRL + HOME** to go back to the main menu.

12. Select **Message Tasks** to add names for which the user can receive messages.

NOTE: Base Services Message Functions are also used under Extended Services. See "Using PCLP 1.3 Extended Services" on page 107 for further details.

To set up a Base Services workstation to use network resources, you need to follow a similar process to the above, but from a work station instead of a server, and 'USE' is offered on the menus instead of 'SHARE'.

If you want to save the setup, so you don't have to go through the menu every day, you select 'SAVE NETWORK SETUP'.

See Figure 47 on page 79 for the illustration mentioned above.

```
                    ┌─────────────┐
                    │ MESSAGE     │
                    │ TASKS       │
                    │             │
                    └─────────────┘

  ┌──────────┐      ┌─────────────┐
  │ Starting │      │ PRINTER     │
  │ the      │      │ TASKS       │
  │ NETWORK  │      │             │
  └──────────┘      └─────────────┘
       │
  ┌──────────┐      ┌─────────────┐
  │ MAIN     │      │ DISK OR     │
  │ MENU     │      │ DIRECTORY   │
  │          │      │ TASKS       │
  └──────────┘      └─────────────┘
       │
                    ┌─────────────┐
                    │ PRINT       │
                    │ QUEUE       │
                    │ TASKS       │
                    └─────────────┘

                    ┌─────────────┐
                    │ NETWORK     │
                    │ STATUS      │
                    │ TASKS       │
                    └─────────────┘

                    ┌─────────────┐
                    │ PAUSE       │
                    │ AND CON-    │
                    │ TINUE TSK   │
                    └─────────────┘

                    ┌─────────────┐
                    │ SAVE        │
                    │ NETWORK     │
                    │ SETUP       │
                    └─────────────┘
```
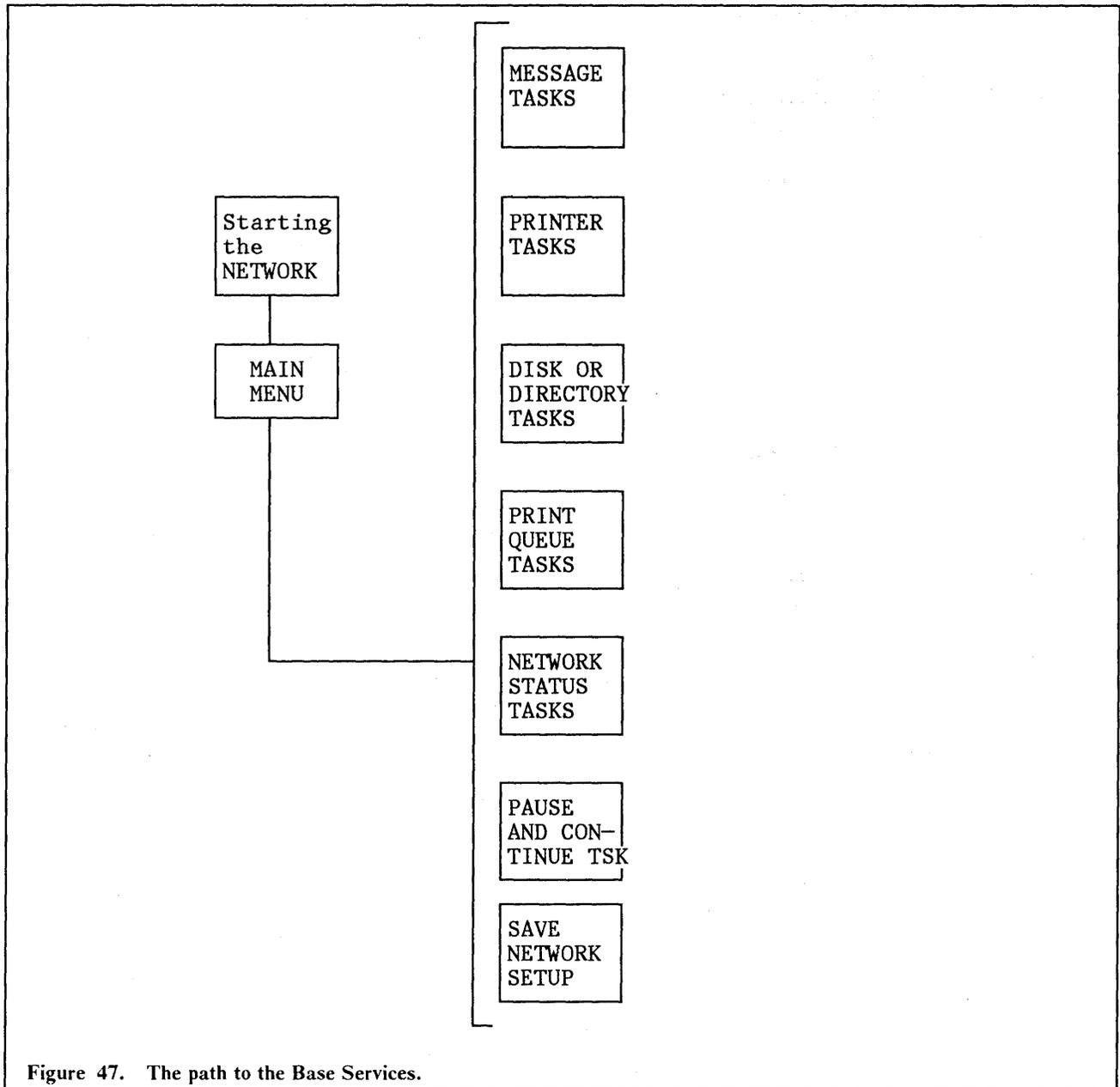
Figure 47. The path to the Base Services.

7.1.2 Extended Services

As a LAN Administrator, you have the responsibility for your domain before you start defining, you should know who is going to have access and to what. You must be logged on to a Domain before you can define any of its resources.

If you log on as a LAN Administrator, and from the Application Selector menu select PCLP and then ADMINSRV, you will see the options you have, and from here you will be able to define the whole domain (filesets, printers, users, applications and so on).See Figure 48 on page 81.

Your first step as LAN Administrator is to define the server machines of the domain. This should be done for all of the Domains. You have to enter a unique ID for each server and RIPL work station. For each RIPL work station define the machine and specify its LAN

adapter's burnt-in address. You also need to define the servers which are going to support RIPL-work stations. The servers must be active for these definition steps.

At this stage define each user with default attributes, and select the server to hold the users home's fileset. This will be created immediately on the server specified. Now you specify the resources, applications and RIPL Images.

The last definition step is to finish the user details.

For documentation you should print for each domain the Domain Definition File. This provides an overview of all definitions in the Domain.

Except for define RIPL servers which have to be on-line when creating the image file, you do not need to start the network to create the other definitions. From the Domain Controller you can choose to 'USE SERVER ONLY' and not start the network.

We shall now go through the above process in detail.
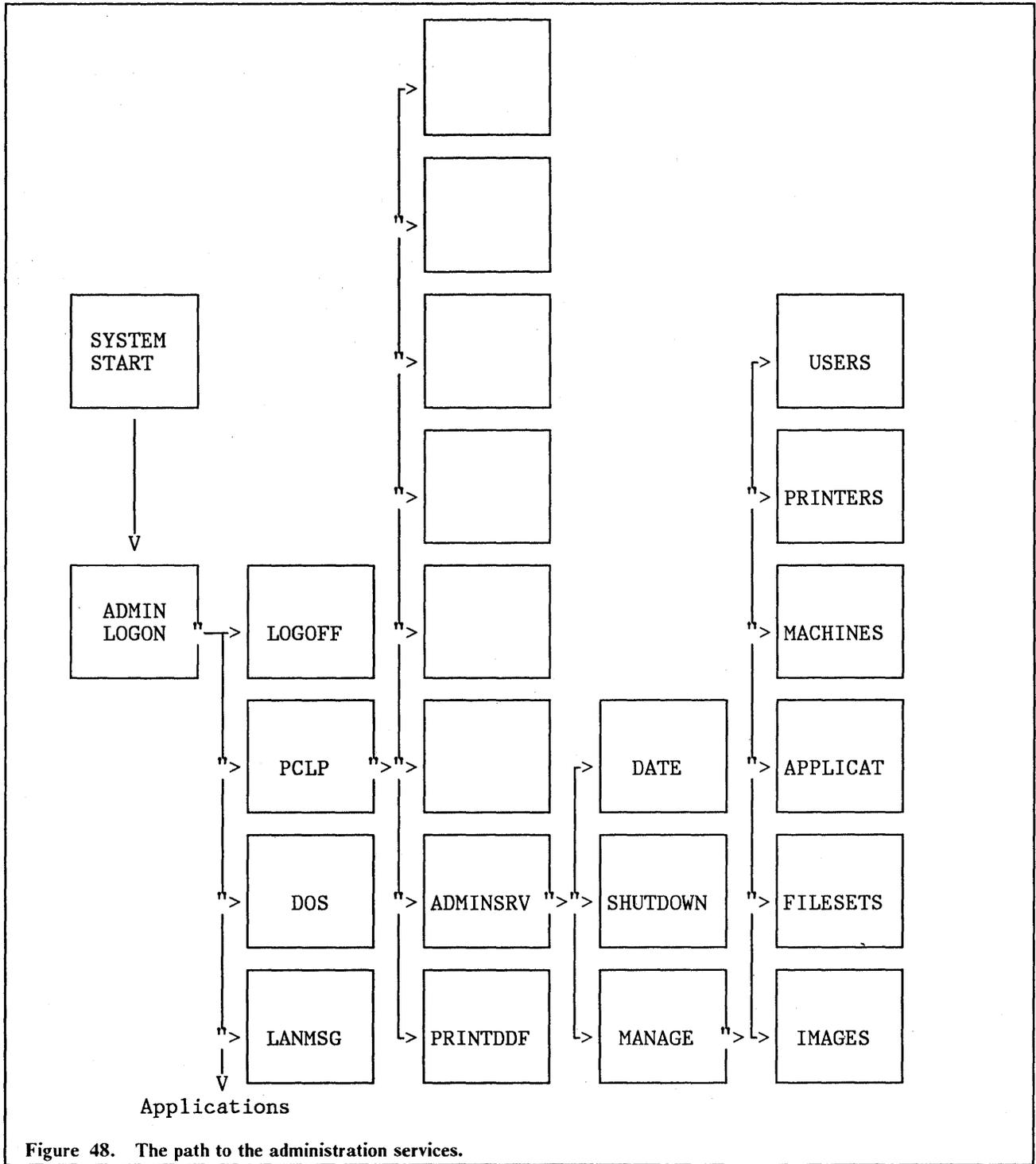
Figure 48. The path to the administration services.

7.1.3 Define Server and RIPL work station

At this stage you have installed the program on a domain controller and are ready to log on to it to do your definitions.

The first time you log on to the system with the userid ADMIN, one fileset will already be defined (ADMIN). This fileset was defined during the installation, and that is the LAN Administrator's home fileset. As soon as possible you should create a separate administrator id and password for your use; how to do this will be covered soon. You need to do this because each domain has an ADMIN id created for it, but only one can be on the LAN at a time because all user ids must be unique. To define a server in your Domain, following these steps:

1. Select PCLP from the Application Selector

2. Select ADMINSRV from PCLP functions

From the action bar you have now four choices:

3. "END" if you choose END and press enter you may:

   a. "End Administrator Services" which takes you back to Application Selector

   b. "Resume Administrator Services" which let you stay where you are.

4. "DATE"

   a. "Change Date and Time" Here you can set the system date and time. This updates the date and time on the Domain Controller and Servers immediately. The system date and time of the workstations are synchronized when they are logged on.

5. "SHUTDOWN"

   a. "System Shutdown" The option is to enable or disable 'logon status'. Selection of 'disable' means that users will not be able to logon again. It will not log them off, however. Since this does not automatically send a message the LAN Administrator should notify all the users by sending a message via the LANMSG - option on the Application Selector.

6. "MANAGE"

   a. "System Management Services" From here you can manage the resources in your Domain.

The only machines that are defined to the domain are its servers and Remote Program Load workstations. Fixed disk workstations are not defined.

7. Select MANAGE

8. Select MACHINES

   a. There are two choices offered:

   1) "New Machine Details"

   2) "Maintain Machine Details" from here you can select an already defined machine to maintain.

      a) "change"; change machine details. The only thing you can change is the description.

      b) "delete". From here you can delete machine details by pressing enter twice.

9. Select NEW MACHINES DETAILS

a. You enter a machine id, which is the name the machine will be known by within the system. You can enter up to 8 letters, digits, or underscore. For a server it must be the same name you entered when you installed it.

10. "MACHINE USE"

   a. "Work station" if you want to define a RIPL work station

   b. "Server" if you want to define a server.

11. Enter Server Details.

   a. Text Description.

   b. "Support Remote IPL. YES/NO"

      1) If you select NO the server you are defining can't be used for Remote initial program loading of any work station.

You have to repeat the above steps for each server. If you are defining an RPL work station you will proceed as follows from step 10.

12. Enter RIPL work station details

   • Text description

   • The work station's LAN adapter number[1] (The number will be displayed when the work station is turned on, if you have Token-Ring adapter with the RPL feature or PC Network II adapter installed). For PC Network, the adapter address displayed has to be calculated. Refer to Chapter 6 'Installing RIPL work station'.

   • Expanded Memory Support Y/N

      a. If the work stationhas an XMA adapter installed, select YES. This will cause the RIPL Server to download DXM.1MOD to the work station at RPL time rather than DXM.0MOD, in order to support 3270 Workstation Program.

13. Select the RIPL server for this work station.

14. Select the required RIPL work station RPL image from the presented list.

See Figure 49 on page 84 for the illustration mentioned above.

---

[1] The LAN adapter number, which is burned in, is used to establish the connection between server and work station for executing RIPL.

```
                    ┌─────────────────────┐
                    │      MACHINES       │
                    └─────────────────────┘
                               │
                               V
        ┌─────────────────────┐        ┌─────────────────────┐
        │        NEW          │        │     MAINTAIN        │
        │   MACHINE DETAILS   │        │   MACHINE DETAILS   │
        └─────────────────────┘        └─────────────────────┘
                   │                              │
                   V                              │
        ┌─────────────────────┐        ┌─────────────────────┐
        │     MACHINE ID      │        │    CHANGE OR        │
        │                     │        │    DELETE           │
        │  SERVER or RIPL WS  │        │                     │
        └─────────────────────┘        └─────────────────────┘
              │           │
              V           V
   ┌─────────────────┐      ┌─────────────────────┐
   │ RIPL WS DESCRIPT.│      │  SERVER DESCRIPT.   │
   │                 │      │                     │
   │ LAN ADAPTER NBR.│      │   RIPL SUPPORT      │
   │                 │      └─────────────────────┘
   │   XMA SUPPORT   │
   └─────────────────┘
            │
            V
   ┌─────────────────┐
   │     SELECT      │
   │  RIPL SERVER    │
   │  DEFAULT IMAGE  │
   └─────────────────┘
```

Figure 49.   The path to define machines.
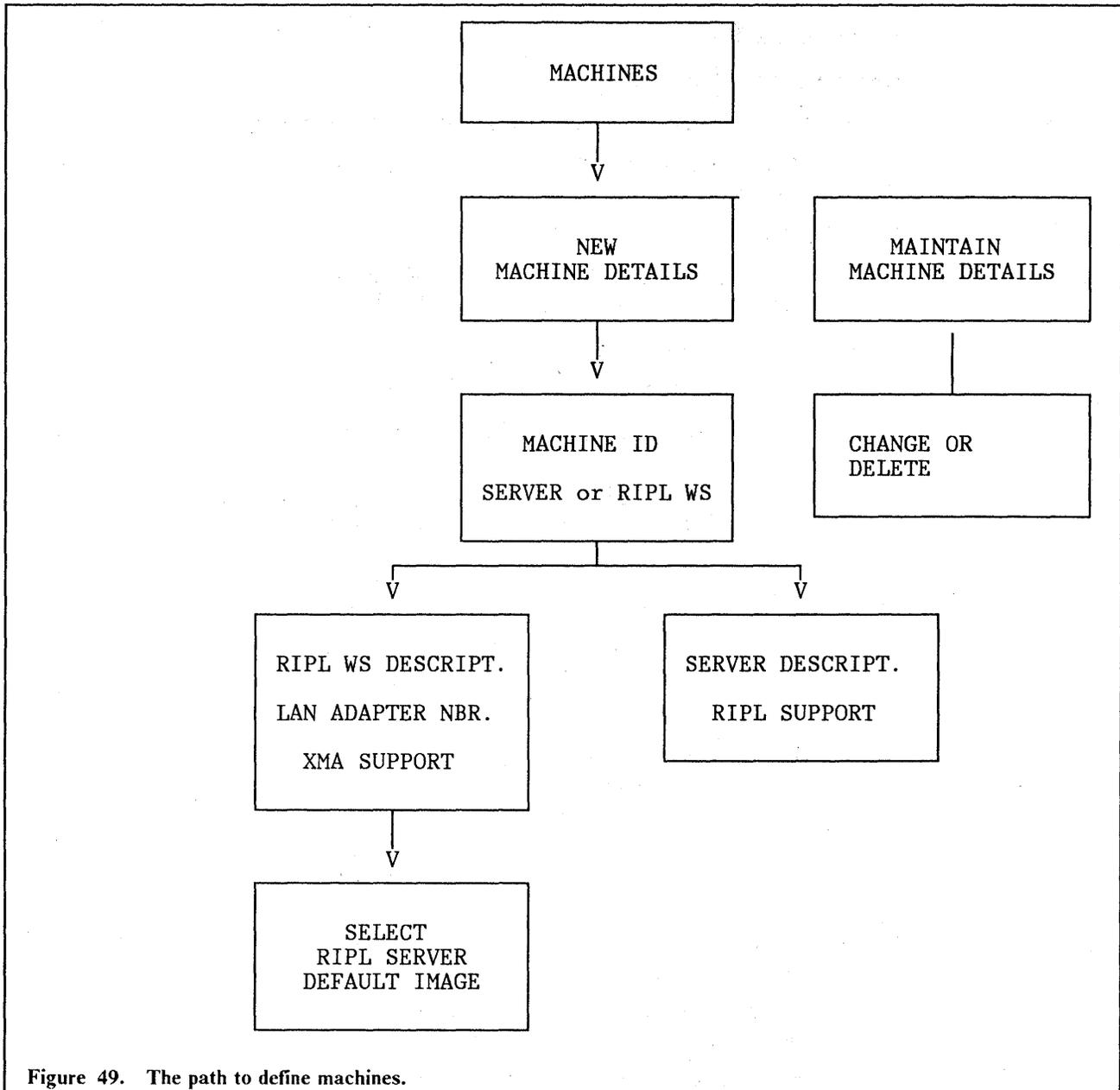
7.1.4   Define Users (STEP 1).

We are now going to define users, but not in detail; we will come back to that later. We have to define the user now, in order to define resources to them later on.

Every user gets a Home Fileset assigned on the selected server, and this directory is created automatically. The name of the directory is C:\PCLPUSER\USERID.

To define a user, follow these steps:

1.   Select PCLP

2.   Select ADMINSRV

3. Select MANAGE

4. Select USERS

Here you have two choices:

    a.   "New User Details" lets you add a new user to the system.

    b.   "Maintain User Details" lets you examine or change the existing users description.

5. Select NEW USER DETAILS

    a.   Enter "userid". This will be the identifying name that the user must enter to logon. It must be a unique name in the LAN.

    b.   "Creation Type"

        1)   "New" to create a new user definition.

            a)   Select a server from the list of servers, to be used for this user's home fileset.

            b)   "User Name". E.g. user's full name and phone number or room number. This is for the LAN Administrator use only.

            c)   "Privilege"

            Here you have two choices:

                i.   "Normal". This should be used for regular users

                ii.   "Administrator". This should only be giving to administrator of the LAN.

        2)   "Model". You can copy an already existing user definition which in many cases will be a possible solution. This option would present you with a list of defined users to choose your model, then continue below with PASSWORD.

    c.   You can assign and enter a "PASSWORD". This is optional and has to be between 5 and 8 letters

    d.   The user home fileset is created on a server and the definition created in the domain controller

    e.   "Modify Details YES" gives you the possibility to see the new user's attributes and modify them. "NO" ends the definition. If YES, then:

        •   "Change" - change user details or edit user profile.

            ■   "Change User Details" - user name, privilege, password.

            ■   "Edit User Profile" - in PROFILE.BAT.

        •   "Delete" - delete user details.

        •   "More" - Fileset assignments, printer assignments, user's fileset access, application selector.

You must repeat the above steps for each user.

"The user" is created internally with a standard set of default attributes; he/she will have a home fileset with the user ID as its name and with logon assignment to drive Y. The directory C:\PCLP13XS on the Domain Controller is assigned to drive Z on a regular

workstation, except on RIPL work station, where it will be assigned to drive X. This drive is used for access to panels, help, on-line reference, and tutorial files.

```
                    ┌─────────────────────┐
                    │        USERS        │
                    └─────────────────────┘
                              │
                              V

        ┌─────────────────────┐        ┌─────────────────────┐
        │        NEW          │        │      MAINTAIN       │
        │   USER DETAILS      │        │   USER DETAILS      │
        └─────────────────────┘        └─────────────────────┘
                    │
                    V

        ┌─────────────────────┐        ┌─────────────────────┐
        │      USER ID        │        │     SELECT USER     │
        │                     │────────│                     │
        │   NEW or MODEL      │        │                     │
        └─────────────────────┘        └─────────────────────┘
                    │                            │
                    V

        ┌─────────────────────┐
        │   SELECT SERVER     │
        └─────────────────────┘
                    │
                    V

        ┌─────────────────────┐
        │  USER DESCRIPTION   │
        │                     │
        │  PRIVILEGE LEVEL    │
        │                     │
        │     PASSWORD        │
        └─────────────────────┘
                    │
                    V

        ┌─────────────────────┐
        │   HOME FILESET      │
        │   AND DEFINITIONS   │───────────────────┘
        │   ARE CREATED       │
        └─────────────────────┘
                    │
                    V

        ┌─────────────────────┐
        │       MODIFY        │───
        └─────────────────────┘
```
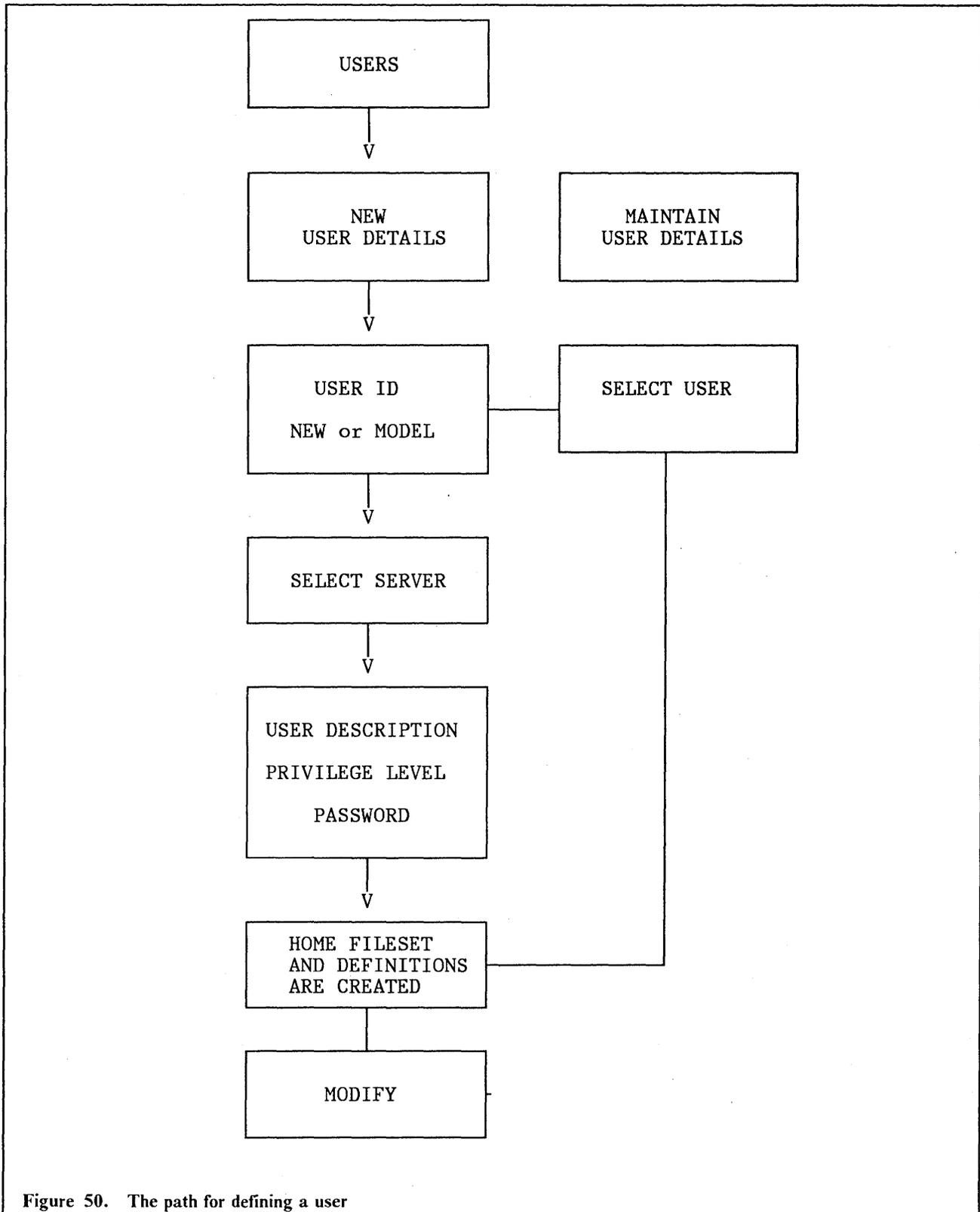
Figure 50.   The path for defining a user

7.1.5 Define Filesets.

A fileset is defined by naming it and by deciding whether it's going to be internal or external. External filesets are on servers outside the domain, and can accessed by Base Services functions.

For defining an internal fileset, the server, the disk drive, and the path containing it must be specified. If the path does not exist it will be created.

Users and their access rights must be specified for every fileset, and only users who have already been defined, can be specified. This is why we have to define users before filesets.

For definition of external fileset; see "Defining External Filesets" on page 104.

To define an internal fileset, follow these steps:

1.   Select PCLP

2.   Select ADMINSRV

3.   Select MANAGE

4.   Select FILESETS

Here you will have two choices:

    a.   "New Fileset Details". To enter details of a new fileset.

    b.   "Maintain Fileset Details". Here you can work on the details of an existing fileset. You just have to select one from a presented list of filesets in the domain.

5.   Select NEW FILESET DETAILS

    a.   Enter "Fileset id". This is the identifying name to which the fileset is to be referred within the system. Type up to 8 letters.

    b.   "Description". Enter some descriptive text. Tab to next option.

    c.   "Fileset Type"

        Here you have two choices:

        1)   "Internal" means a shared fileset held on a server within this Domain.

        2)   "External" means a shared fileset that is outside this Domain.

6.   Select "Internal"

7.   Select "Server" on which the fileset resides. (You are presented with a list of defined servers in the Domain).

8.   "Drive". Give the identifier of the server drive on which the fileset resides. "A" for diskette drive and "C" for fixed disk.

9.   "Path to Fileset". Here you must give a path; a blank is not accepted. If you type "\" the entire drive is taken as the path.

10. "Share Mode"

    Here are two choices:

    a.   "Static" means that the fileset will be shared when the server is initialised.

    b.   "Dynamic" means that the fileset will be shared when it is requested. For more details, see "Definition of Static and Dynamic" on page 91.

11. From the presented list of users, select one or more to determine their access to this fileset.

Select a user with the space bar to indicate user access. Enter the kind of access each selected user should have; R = read only and U = update. Pressing ENTER ends the definition of a fileset. See Figure 51 on page 90 for the illustration mentioned above.

```
                        ┌─────────────────────┐
                        │                     │
                        │     FILESETS        │
                        │                     │
                        └──────────┬──────────┘
                                   │
                                   V

        ┌─────────────────────┐                    ┌─────────────────────┐
        │        NEW          │                    │      MAINTAIN       │
        │  FILESET DETAILS    │                    │  FILESET DETAILS    │
        │                     │                    │                     │
        └──────────┬──────────┘                    └─────────────────────┘
                   │
                   V

        ┌─────────────────────┐
        │                     │
        │    FILESET NAME     │
        │                     │
        └──────────┬──────────┘
                   │
                   V

        ┌─────────────────────┐
        │  FILESET DESCRIPT.  │
        │  INTERNAL/EXTERNAL  │
        │                     │
        └──────────┬──────────┘
                   │
                   V

        ┌─────────────────────┐
        │                     │
        │    SELECT SERVER    │
        │                     │
        └──────────┬──────────┘
                   │
                   V

        ┌─────────────────────┐
        │    DRIVE, PATH      │
        │   STATIC/DYNAMIC    │
        │                     │
        └──────────┬──────────┘
                   │
                   V

        ┌─────────────────────┐
        │       SELECT        │
        │   USERS to ACCESS   │
        │  TYPE of USER ACCESS│
        └─────────────────────┘
```
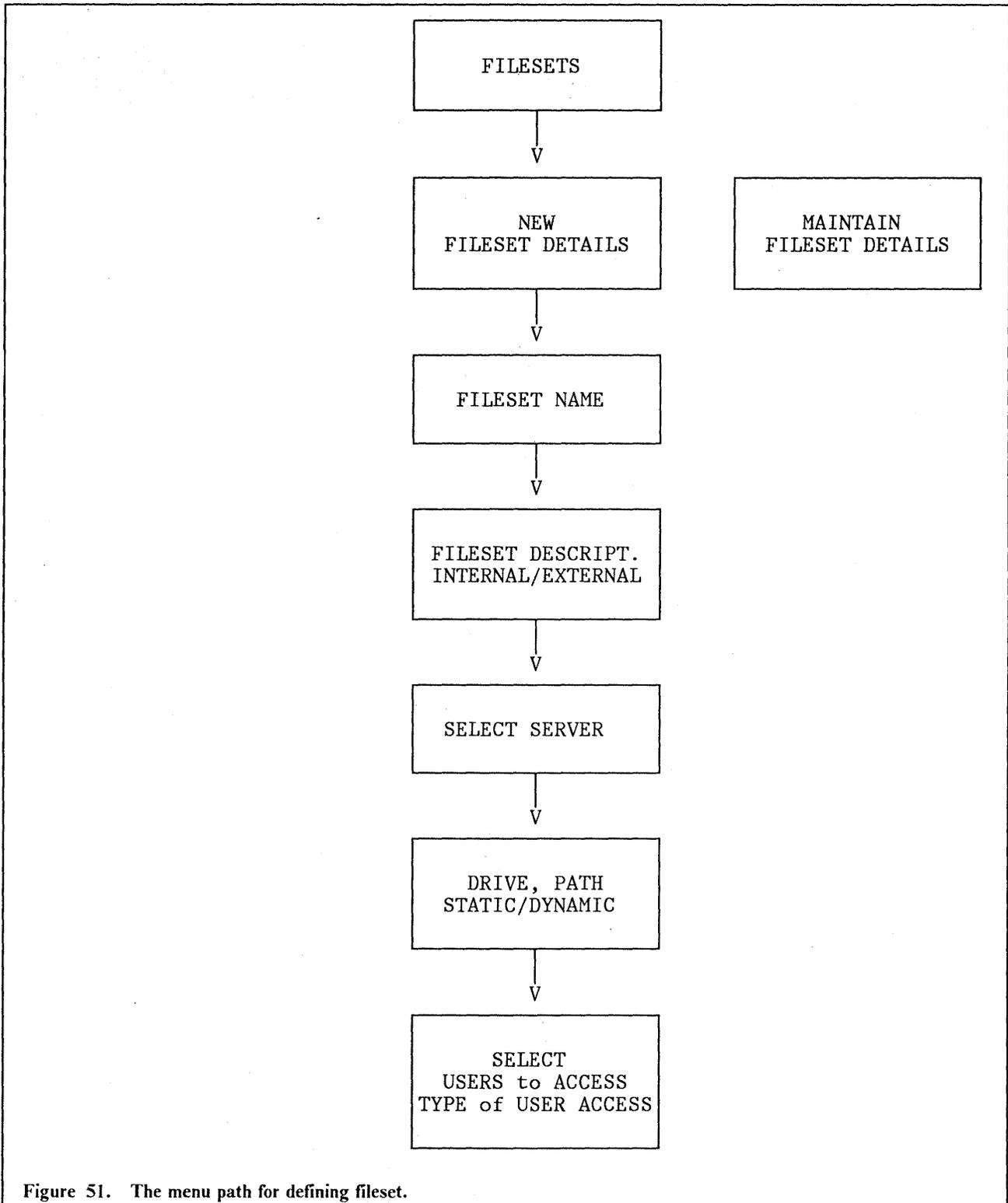
Figure 51.   The menu path for defining fileset.

7.1.6 Definition of Static and Dynamic

The definition of static or dynamic decides whether this is shared on server startup (**static**) or at the first request to use it (**dynamic**). For further details see "Working with Applications" on page 127The following figure shows these two processes:

```
+----------------------------------------------------------------+
|                                                                |
|  +---------------------------------+------------------------+  |
|  | SERVER                          | USER                   |  |
|  +---------------------------------+------------------------+  |
|  |                                 |                        |  |
|  |   FILESET STATIC                |                        |  |
|  |   .....                         |   IPL                  |  |
|  |   IPL                           |   start PCLP           |  |
|  |   start PCLP                    |                        |  |
|  |                                 |   .....                |  |
|  |   .....                         |   .....                |  |
|  |   .....                         |   XSAS.BAT             |  |
|  |   XSAS.BAT                      |   .....                |  |
|  |                                 |   .....                |  |
|  |   .....                         |                        |  |
|  |   NET SHARE ... namea =         |   .....                |  |
|  |                                 |   .....                |  |
|  |   .....                         |   .....                |  |
|  |   log on (optinal)              |   log on               |  |
|  +---------------------------------+------------------------+  |
|  |                                 |                        |  |
|  |   FILESET DYNAMIC               |                        |  |
|  |   .....                         |   Application Selector |  |
|  |   IPL                           |   DW4                  |  |
|  |   start PCLP                    |                        |  |
|  |                                 |   .....                |  |
|  |   .....                         |   .....                |  |
|  |   XSAS.BAT                      |   .....                |  |
|  |   .....                         |   NET USE ... \\....\namea |
|  |   .....                         |   NET USE ... \\....\nameb |
|  |   .....                         |                        |  |
|  |   log on (optinal)              |                        |  |
|  |                                 |                        |  |
|  |                                 |   Session established  |  |
|  |                                 |   fileset assigned     |  |
|  |                                 |   to network drive.    |  |
|  +---------------------------------+------------------------+  |
|  |   NET SHARE ... nameb =         |   .....                |  |
|  +---------------------------------+------------------------+  |
|                                                                |
+----------------------------------------------------------------+
```

The diagram shows that when a fileset is static, the NET SHARE is done **before** logon. When a user selects DW4 from the application selector menu, for example, a NET USE is issued, for 'NAMEA'. This establishes a link with the existing NET SHARE. In the case of a dynamic fileset, a NET USE is issued for 'NAMEB.' Since there is no outstanding NET SHARE, the system automatically issues the NET SHARE for 'NAMEB' and establishes a link.

STATIC	DYNAMIC
- often used application	- less active NET SHAREs at one time
- faster access for users	- good for seldom used applications

7.1.7 Define printers.

Definition of printers is similar to fileset definition (see "Define Filesets." on page 88).

To define printers, proceed as follows:

1. Select PCLP

2. Select ADMINSRV

3. Select MANAGE

4. Select PRINTERS

You have here three choices:

   a. "New Printer Details" lets you enter details of a new printer that is going to be shared in the system.

   b. "Maintain Printer Details". Select a printer and you can view,or change the details of any existing printer in the domain.

   c. "Update Shared Printer List" lets you select a server that has shared printers, lists the printers that are shared on it at startup, and lets you update the list.

5. Select "New printer Details"

6. Type "Printer id" This is the name by which the printer will be known within the system. Type up to 8 letters.

7. "Description"

8. "Printer Type"

You have two choices:

   a. "Internal" means shared printer attached to a server within this Domain.

   b. "External" means a shared printer that is outside this Domain. If you select "external" you must edit the batch file that is used to access this printer. For more details, see "Defining External Filesets" on page 104. A batch file will be presented for you to edit.

9. Select "Internal"

10. Select server to be used to share this printer.
    No server can have more than three shared printers attach to it. The printer does not need to be physically attached to its server when you define it, only when you use it!

11. Select "DOS" device that is assigned to this printer.

    a. LPT1

    b. LPT2

    c. LPT3

    d. COM1

    e. COM2

    f. OTHER. If you select this, you must type in the device name to be used.

12. Select FORM CONTROL.

- There are now three different ways to handle form feeds at the end of a print job. Selecting "F" is the same as in previous PC LAN program version. Selecting "N" specifies no form feed at the end
"N" specifies no form feed at the end of print job (this assumes that the application is doing the form feed at the end). Selecting "A" defines an automatic mode. The last 64 characters of a print job are checked for a form feed. If there is one, the print stream is not changed, but if no form feed is found, the IBM PC LAN program will add one to it.

This ends the printer definition. To share the printer on the LAN, you must press escape once, and then follow these steps:

13. Select UPDATE SHARED PRINTERS LIST from System Management Services

14. Select the server that shares the printer

15. Select CHANGE

16. Select the printer with the space bar and press enter.

- If you do not press space bar, the selected printer will not be added to the list. Be aware that there will not be any error messages to warn you of this.

If you decide to share this internal printer outside this domain then you must also add a NET SHARE statement in EXTERNAL.BAT. Refer to Defining External Resources in this chapter.

That completes the definition of internal printers. See Figure 52 on page 94 for the illustration mentioned above.

```
                    ┌─────────────────────┐
                    │                     │
                    │      PRINTERS       │
                    │                     │
                    └──────────┬──────────┘
                               │
                               V

        ┌─────────────────────┐                    ┌─────────────────────┐
        │                     │                    │                     │
        │        NEW          │                    │      MAINTAIN       │
        │   PRINTER DETAILS   │                    │   PRINTER DETAILS   │
        │                     │                    │                     │
        └──────────┬──────────┘                    └─────────────────────┘
                   │
                   V

        ┌─────────────────────┐
        │                     │
        │    PRINTER NAME     │
        │                     │
        └──────────┬──────────┘
                   │
                   V

        ┌─────────────────────┐
        │                     │
        │  PRINTER DESCRIPT.  │
        │  INTERNAL/EXTERNAL  │
        │                     │
        └──────────┬──────────┘
                   │
                   V

        ┌─────────────────────┐
        │                     │
        │    SELECT SERVER    │
        │     DOS DEVICE      │
        │                     │
        └──────────┬──────────┘
                   │
                   V

        ┌─────────────────────┐
        │                     │
        │       UPDATE        │
        │   SHARED PRT LIST   │
        │                     │
        └──────────┬──────────┘
                   │
                   V

        ┌─────────────────────┐
        │                     │
        │    SELECT SERVER    │
        │  SELECT CHANGE LIST │
        │  SELECT PRT's SHARED │
        │                     │
        └─────────────────────┘
```
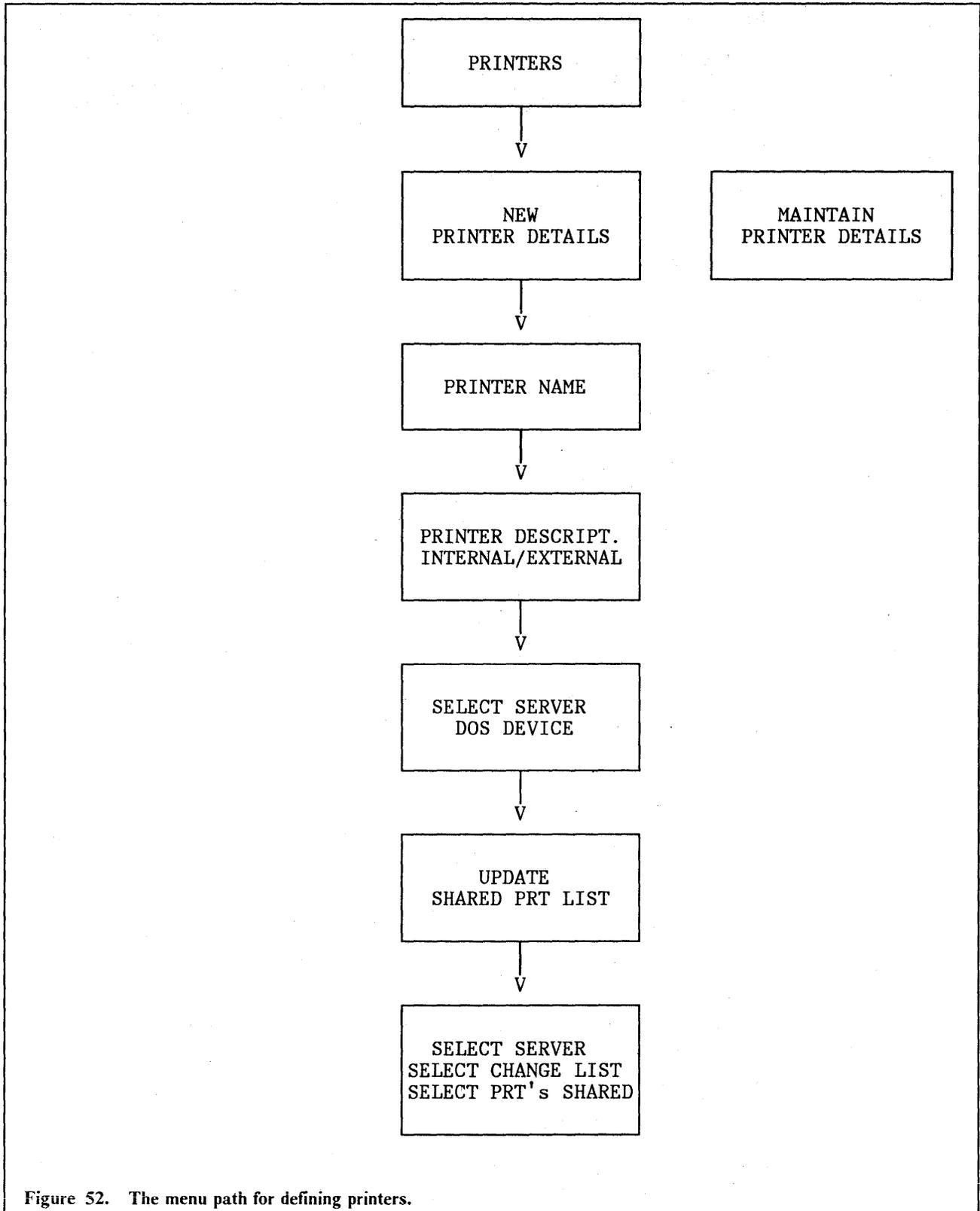
Figure 52.   The menu path for defining printers.

7.1.8 Define Applications

Before defining shared applications to be made available to users, it is necessary to define the fileset in which the application has been physically installed (package fileset). For more information regarding installation of applications, see "Working with Applications" on page 127

All applications which are defined by the LAN Administrator may be used by Extended Services users, if they are authorised to use the associated filesets.

To define a shared application, follow these steps:

1. Select PCLP

2. Select ADMINSRV

3. Select MANAGE

4. Select APPLICATIONS

Here you have two choices:

    a. "New Application Details" Select this to enter details of a new application that you want to define.

    b. "Maintain Application Details". Select this to work with an already existing application.

5. Select NEW APPLICATION DETAILS

6. Enter "Application ID" The name you specify will appear on the users Application Selector menu. It must also be a unique name among the shared applications.

7. Enter a "Description". This will also appear on the user's Application Selector.

8. "DOS Command Line". Enter The DOS command needed to invoke the program.

9. "Collect Parameters"

Here you will have two choices:

    a. "YES" means the user will be prompted for additional information where they load the application, for example a file name. Select "NO" if this will not required.

10. "Set Current Fileset"

Again we have two choices:

    a. "YES" will set the current directory of the work station to the fileset you specify later.

    b. "NO" retains the fileset and directory that are current when the application is invoked.

11. "Additional Filesets"

Again you have two choices:

    a. "YES" allows you to specify additional filesets to be linked with the application.

    b. "NO" retains the assignments that are current when the application is invoked.

12. Select a fileset that contains the program package for the application. You are presented with a list of domain filesets from which to choose.

13. Type in the "Path within fileset to directory where the program resides". If you leave this blank, a "\" will be inserted.

14. "Specify Drive"

Here you will have two choices:

    a.   "YES" means you specify a drive to which the program package fileset always will be assigned.

    b.   "NO" means that PCLP will automatically allocate a drive at startup time.

15. "Edit Batch File"

Here are two choices:

    a.   "YES" if you want to edit the batch file, for example to insert extra commands. The batch file looks like this:

           *CALL %DRV%\(the "dos cmd line is here) %1 %2....%9.

    b.   "NO" if you want to conclude the application definition procedure.

This ends the application definition. See Figure 53 on page 97 for the illustration mentioned above.

```
              ┌─────────────────────┐
              │    APPLICATIONS     │
              └─────────────────────┘
                         │
                         V
              ┌─────────────────────┐        ┌─────────────────────┐
              │        NEW          │        │      MAINTAIN       │
              │   APPL. DETAILS     │        │   APPL. DETAILS     │
              └─────────────────────┘        └─────────────────────┘
                         │
                         V
              ┌─────────────────────┐
              │     APPL. NAME      │
              └─────────────────────┘
                         │
                         V
              ┌─────────────────────┐
              │  APPL. DESCRIPTION  │
              │  DOS COMMAND LINE   │
              │  COLL. PARAMETERS   │
              │  CURRENT FILESET    │
              │  ADDITIONAL FSETS   │
              └─────────────────────┘
                         │
                         V
              ┌─────────────────────┐
              │   SELECT FILESETS   │
              └─────────────────────┘
                         │
                         V
              ┌─────────────────────┐
              │        EDIT         │
              │     BATCH FILE      │
              └─────────────────────┘
```
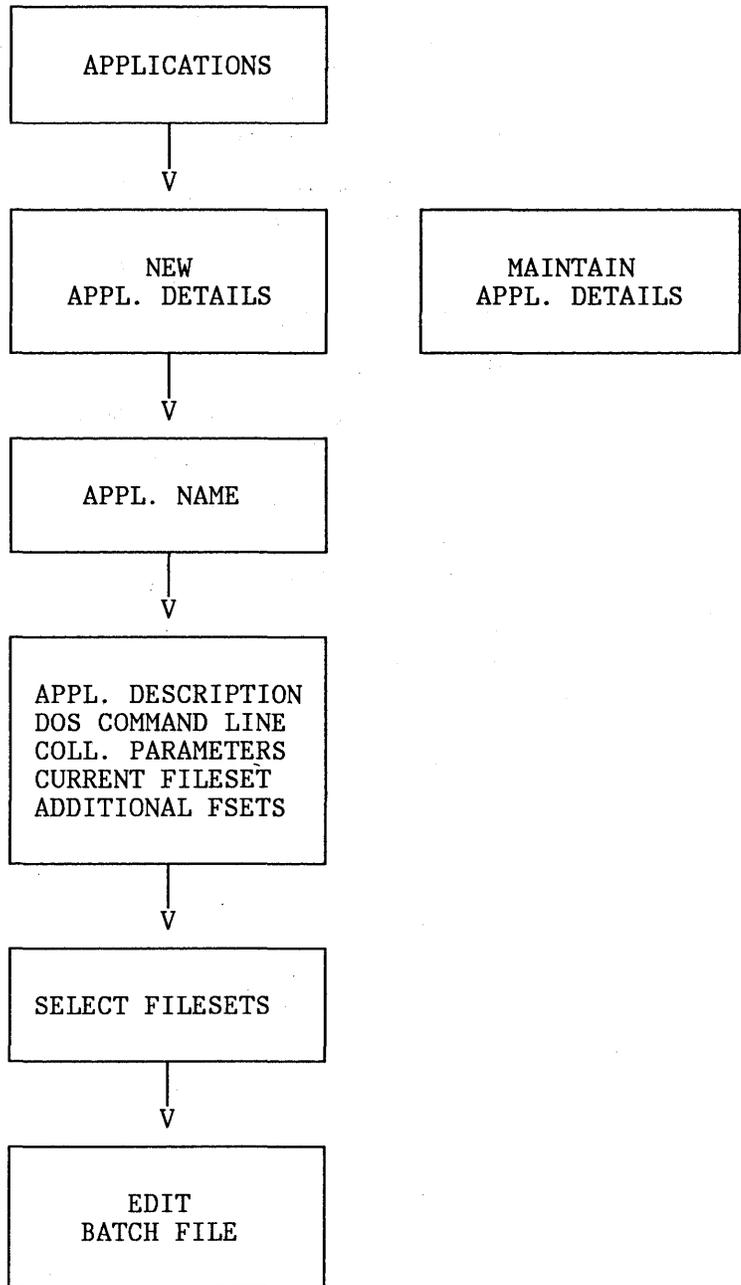
Figure 53.   The path to define an application.

7.1.9 Define Images

There are two ways of creating an image. You can either create an RPL image for a work station, which can be either medialess or have disks, or you can create an "image diskette", which is used as a system diskette in the drive of a diskette based work station. The server which is going to support these RPL work stations has to be defined as an **RPL server**. A set of predefined images is supplied with Extended Services. These are ready to use and do not have to be edited. By default they will boot the RPL work station as a redirector. The predefined images are installed on the domain controller in C:\PCLP13XS\IMAGES. An image always contains: IBMBIOS.COM, IBMDOS.COM, COMMAND.COM. For further information, see -- Heading id " unknown --   a refid = pclpins.

To define a "diskette image" for RPL or diskette use, follow these steps:

1. Select PCLP

2. Select ADMINSRV

3. Select MANAGE

4. Select IMAGES

Here we have two choices:

    a.   "New Image Definition" Here you can create a new image definition file. You are asked to input an image identifier and optional description.

    b.   "Use Existing Definition". This lets you use an existing image definition file, to create an image on RIPL server, and create an IPL diskette.

       From here you can:

-   Change the description of an image.

-   Edit the text in image file

-   Delete an image file

-   Make an image (create the full binary image from its definition file and build it on to selected RPL Server).

5. If you select "New Image Definition" :

    a.   Enter the "Image ID" This will be the identifying name. This has to be unique within LAN. The ids of the image definition files supplied with Extended Services are:

       1)   STD3_14.DEF   3.5"   1.44MB

       2)   STD3_720.DEF   3.5"   720kB

       3)   STD5_12.DEF   5.25"   1.2MB

       4)   STD5_360.DEF   5.25"   360kB

    b.   Enter a Text Description

    c.   Now you must edit this file to specify the files you want to include in the image creation.

    d.   Press ENTER

Here is an example of an RIPL image definition for a REDIRECTOR workstation:

```
;     Standard PC LAN Program RIPL image definition for a
;     PC with 3.5' 720K A: diskette
3.5/720K
?:\PCLP13XS\IMAGES\STD_CFG.SYS CONFIG.SYS
?:\PCLP13XS\IMAGES\STD_AUT.BAT AUTOEXEC.BAT
?:\PCLP13XS\IMAGES\STD_SET.BAT SETENV.BAT
?:\PCLP13XS\NET1_30\SMDISP.EXE
?:\PCLP13XS\NET1_30\XSRW.SM
?:\PCLP13XS\NET1_30\NET.COM
?:\PCLP13XS\NET1_30\NETBIOS.COM
?:\PCLP13XS\NET1_30\NETWORK.MSG
?:\PCLP13XS\NET1_30\NETWORK1.CMD
?:\PCLP13XS\NET1_30\REDIR.EXE
?:\PCLP13XS\NET1_30\REDIRIFS.EXE
?:\PCLP13XS\DOS3_30\VDISK.SYS
```

The question marks are replaced by the active drive letter.

The IPL diskette is created by selecting "Diskette Image Creation". You are prompted for the machine ID for the work station to use this diskette, remember that is has to be unique in the LAN. The machine's default Domain is the domain where the diskette has been created.

Selection of Expanded Memory Adapter (XMA) is used to specify if the RPL workstation will be using Workstation Program and with XMA card installed to do so.

See Figure 54 on page 100 for the illustration mentioned above.

```
                    ┌─────────────────┐
                    │     IMAGES      │
                    └─────────────────┘
                             │
                             V
         ┌─────────────────────┐        ┌─────────────────┐
         │       NEW           │        │      USE        │
         │  IMAGE DEFINITION   │        │   EXISTING      │
         │                     │        │   DEFINITION    │
         └─────────────────────┘        └─────────────────┘
                   │
                   V
         ┌─────────────────────┐
         │    IMAGE ID         │
         │  IMAGE DESCRIPTION  │
         └─────────────────────┘
                   │
                   V
         ┌─────────────────────┐
         │     CREATE          │
         │  IMAGE DEFINITION   │
         │              FILE   │
         └─────────────────────┘
                   │
                   V
         ┌─────────────────────┐
         │      MAKE           │
   ┌─────┤  IMAGE or DISKETTE  ├─────┐
   │     └─────────────────────┘     │
   V                                 V
┌─────────────────┐          ┌─────────────────────┐
│                 │          │ SELECT:             │
│     SELECT      │          │                     │
│   RPL SERVER    │          │  MACHINE ID         │
│                 │          │  PROGRAM SERVER     │
│                 │          │  TARGET DRIVE       │
│                 │          │  XMA Yes/No         │
└─────────────────┘          └─────────────────────┘
```
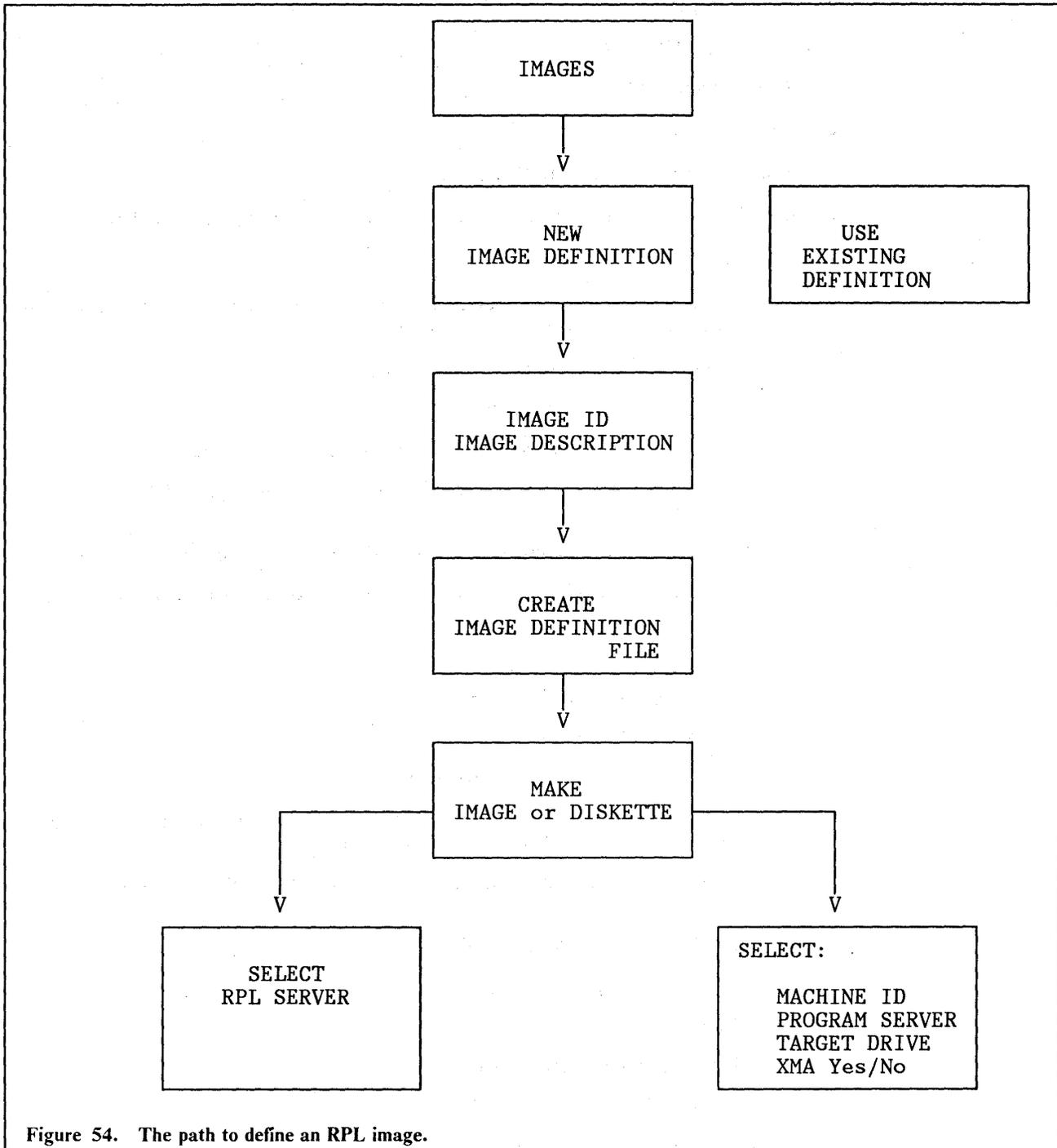
Figure 54. The path to define an RPL image.

7.1.10 Define Users (STEP 2)

In the first part of user definition we specified only the basic attributes for a user; user ID, home fileset server, and password. (See "Define Users (STEP 1)." on page 84).

Now we will complete the definition of users.

1. Select PCLP

2. Select ADMINSRV

3. Select MANAGE

4. Select USERS

5. Select MAINTAIN USER DETAILS

From here you select one user (and only one) to maintain and press ENTER.

Then you will have three choices:

a. "Change". This lets you change the user details; ie. server for home fileset, name, privilege, and password or user profile.

b. "Delete". Here you can delete user details.

c. "More" This gives you these options:

- "Fileset assignments" which shows you the user's current logon fileset.

- "Printer assignments" which shows you the logon printer to device assignment.

- Fileset access which shows you all the fileset the user has access to.

- Application Selector which shows you the contents of the user's Application Selector.

6. Select "MORE"

7. Select FILESET ASSIGNMENTS

8. Select CHANGE

9. Select FILESET by pressing the space bar

10. Specify a DRIVE. Logon filesets are assigned to drives at user log on. All other filesets are assigned when made current the first time.

By pressing enter you will come back to "Maintain User Details". Now we will select printer instead of filesets:

1. Select MAINTAIN USER DETAILS

2. Select USERID and press enter

3. Select MORE

4. Select PRINTER ASSIGNMENTS

5. Select CHANGE

- Assign printer

- Deassign printer

6. Select ASSIGN PRINTER

7. Select a device (for instance LPT2:)

8. Select a printer from list of printers available to this user. When the user logs on again, this printer will be available as assigned.

NOTE: For daily operation of shared printers go to USERSERV from the PCLP menu.

That completes the selection of a printer. Now go back to "Maintain User Details" by pressing enter twice. Now we choose "Users Fileset Access":

1. Select MAINTAIN USER DETAILS

2. Select USERID and press enter

3. Select MORE

4. Select USER'S FILESET ACCESS

5. Select CHANGE

6. Select FILESET ID by pressing space bar

7. Choose ACCESS

   • U = UPDATE, it allows the user to read, write and delete files.

   • R = READ ONLY, it allow the user, read only access

That ends the definition of fileset access. Go back to "Maintain User Details" by pressing enter twice. Now we will choose "Application Selector"

Applications defined by the LAN Administrator may be added to a users Application Selector. Every user gets his own private Application Selector displayed. In the same way applications may be deleted. You can delete DOS and/or LANMSG from the Application Selector menu, but you cannot delete PCLP and LOGOFF.

1. Select MAINTAIN USER DETAILS

2. Select USERID and press enter

3. Select MORE

4. Select APPLICATION SELECTOR

5. Select CHANGE

6. Select one or more applications, by pressing the space bar

See Figure 55 on page 103 for illustration of this process.

```
                          ┌──────────────────────┐
                          │        USERS         │
                          └──────────────────────┘
                                         V
        ┌──────────────────────┐   ┌──────────────────────┐
        │         NEW          │   │       MAINTAIN       │
        │     USER DETAILS     │   │     USER DETAILS     │
        └──────────────────────┘   └──────────────────────┘
                    V                          V
        ┌──────────────────────┐   ┌──────────────────────┐
        │         MORE         │   │        CHANGE        │
        └──────────────────────┘   └──────────────────────┘
                                               V
                                   ┌──────────────────────┐
                                   │     USER PROFILE     │
                                   └──────────────────────┘
```

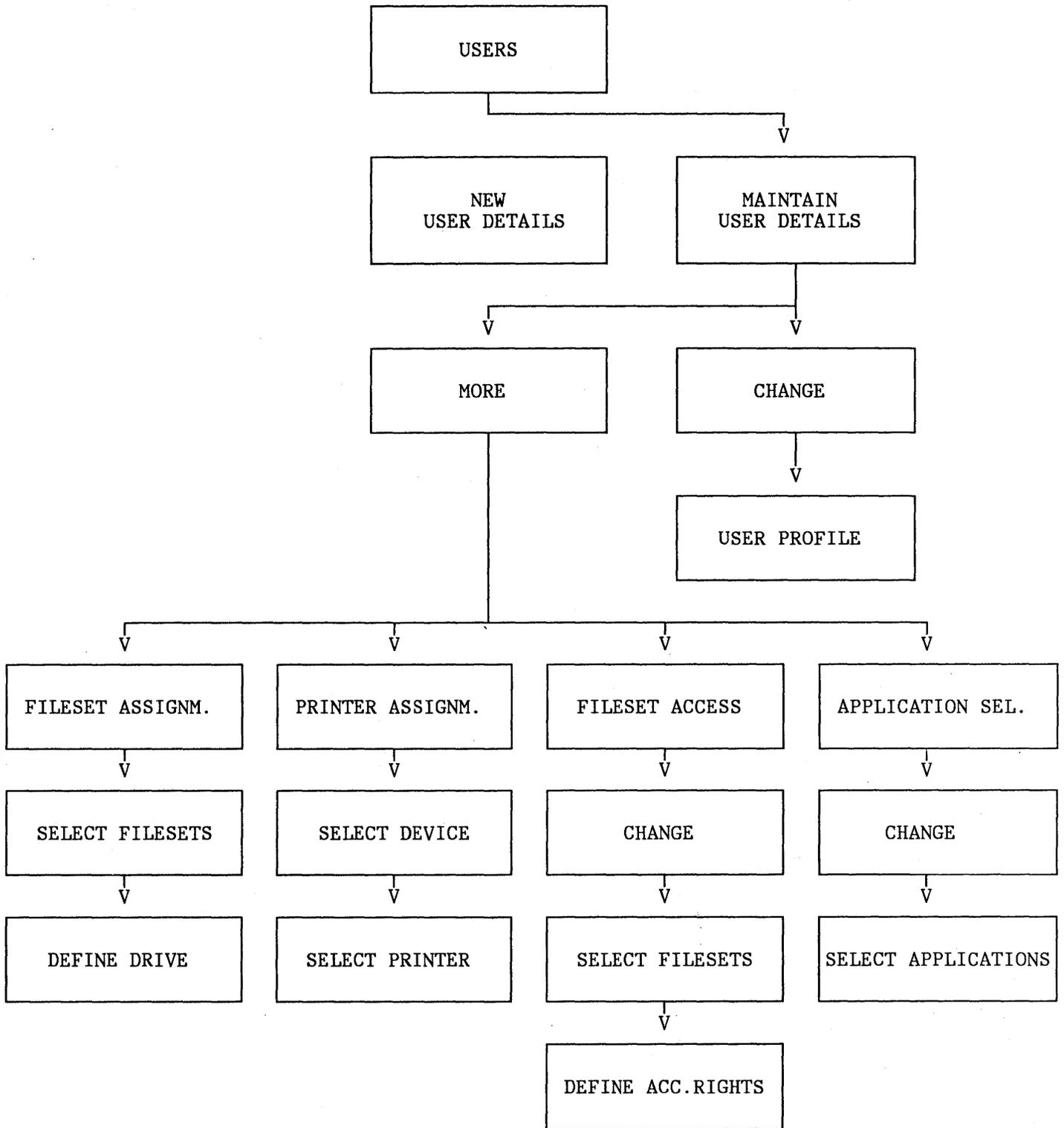| FILESET ASSIGNM.	PRINTER ASSIGNM.	FILESET ACCESS	APPLICATION SEL.
V	V	V	V
SELECT FILESETS	SELECT DEVICE	CHANGE	CHANGE
V	V	V	V
DEFINE DRIVE	SELECT PRINTER	SELECT FILESETS	SELECT APPLICATIONS
		V	
		DEFINE ACC.RIGHTS	

Figure 55.   The path for defining user details.

7.1.11 External Resources

To have access to external resources, means that you can use resources that are outside your Extended Services Domain, such as resources that are on a Base Services Server, or an IBM PC LAN program 1.20 server, or on an IBM OS/2 LAN Server - or on an Extended Services Server in another domain.

Actual sharing of resources for external users is done by the Base Services command NET SHARE in **EXTERNAL.BAT** on the server. This file should be created by the LAN Administrator in the PCLP13BS subdirectory on the server. This batch file is called **before** starting Extended Services.For Security reasons you should always use a password.

We will now continue with defining a fileset, but this time as an external fileset. (See "Define Filesets." on page 88 for internal fileset).

7.1.12 Defining External Filesets

Defining external filesets is almost the same as defining internal filesets. We will now define an external fileset:

1. Select PCLP

2. Select ADMINSRV

3. Select MANAGE

4. Select FILESETS

5. Select NEW FILESET DETAILS

6. Enter "Fileset ID"

7. Text description

Here it comes:

8. "Fileset Type:"

9. Select "External"

Press ENTER to edit the batch file, which will execute the "NET USE" for the resource. Go to line 72:

NET USE %2: \\fflserver name"\fflshort name" fflpassword"

This is the template for the command required. You need to specify these parameters:

Server name   Machine name for external server

Shot name   Shot name or path to the directory

Password   Optinal.

After that you must go to the server where the fileset is stored and create and edit EXTERNAL.BAT. Sharing resources for external users i done by the Base Services command NET SHARE. The batch file should look like this:

```
PCLPXSER
NET SHARE name = d: path password(where "d:path" is the DEVICE or PATH)
IF ERRORLEVEL 0 GOTO EXIT
NET SHARE name /D
: EXIT
```

Points to note about this batch file:

- **PCLPXSER** ensures that system messages relating to the connection being made are stored in detail in one of two files in the user's home fileset. These files are called EXTERNAL.ON and EXTERNAL.OFF, and PCLPXSER selects one according to what the user is trying to do when the message is sent. PCLP 1.3 program documentation advises you to run PCLPXSER before the sharing or using resources externally, so that Extended Services can recognise and inform if the connection fails. This is not needed for a successful connection to be made, however.

- This batch file is called automatically at server startup.

- As well as being stored on the sharing server, the completed batch file is also stored into the directory C:\PCLP13XS\FILESETS on the domain controller.

- The NET SHARE name /D should be used in case the NET SHARE fails for some reason.

- Another entry can be added after the : EXIT label. You don't have to repeat PCLPXSER.

7.1.13 Defining an External Printer

Definition of external printers is identical to defining external filesets.You choose EXTERNAL instead of internal and then edit the batch file as for external filesets (same line).

For example:

NET USE LPT1 = XPRINTER LPT1 is the device name on your work station and "xprinter" is the network name set up for the printer you want to use.

NET SHARE XPRINTER = LPT1 In EXTERNAL.BAT on the print server, this command shares the printer with network printer name XPRINTER, as the server's LPT1 device.

8.0 Using PCLP 1.3 Extended Services

This chapter will be divided into three parts as follows:

- PCLP for the 'Normal' User
- PCLP for the Administrator
- LAN Message Facilities

8.1 Using the LAN (for "normal" users)

Let's assume you are a 'normal' user under PCLP 1.3 Extended Services Your LAN environment has been customised for you, you have been assigned a user id and password, and you have been given access to the applications and resources you need. So how do you begin?

In this section we will lead you through the user menus and functions, completely from the user perspective; you might use this part as the basis for educating your users in how to use PCLP 1.3 on a daily basis. This section includes:

1. Before you Start

2. Logging on

3. Your application selector menu

4. User Menu Map with Landmarks

5. LANMSG facilities

6. Using PCLP Functions

   - PRINTF
   - USERSERV
   - FILEMAN
   - USERADMN

7. Getting Help

8.1.1 Before You Start

Before you attempt to sign on to the system, you need certain information; your userid, the id of the 'domain' to which you have been assigned (cf. Chapter 2, Philosophy of PCLP 1.3), and if you have been assigned one, your password. For the purposes of this section, your name is Clare McRuddock, your userid is CLARE1, the id of your domain is DOM01, and your password is RUDDOCK.

This is all the information you need to get started; you are now ready to logon.

8.1.2 Logging on to Extended Services

Under Extended Services you can log on to the LAN from any workstation you like, but not from a server. You do not need to change anything in your configuration if you want to move to another machine. You may be working from a workstation with fixed disk, diskette or no disk media at all; in any case, after a short time of clicking and whirring and informational messages, you should be presented with the PCLP Extended Service Initialisation Screen; this is where you logon. If you have been booted up on a Remote Program Load workstation, you have an option here to escape and reboot from a different RPL image. You might use this, for example, if you have been booted up as a redirector but would rather be a receiver, in order to receive LAN messages.

Enter your userid as requested.The id for the domain may well be already filled in, with a default. This is simply for your convenience, where that machine is most often or always used in that domain; if it is not the one you want, simply type over it with the one you do. You will always use the same userid, and can only be logged on to one domain with that id at one time.

Most probably, you will have had a password assigned to you; at this stage a window appears prompting you to enter your password. This will not be displayed at any time. If you mistype it, you are allowed two more attempts, after which the machine is disabled and you need to 're-boot' (CTRL + ALT + DELETE) and start again.

8.1.3 Your Application Selector menu

After a successful logon, you will be asked to wait a few seconds, then are presented with a full screen menu of options. This is called the Application Selector, and is your entry screen into your applications, the LAN Messaging Facility (if you use it) and into the PCLP functions. You will always enter an application from this menu and be returned to it on exiting the application. If you use DOS, you will also access it from this menu. The application selector menu that you see has been customised for your user id, so that no matter which machine you sign on to, you will always see the same menu. You can make certain changes to the menu yourself; these will be covered later in the section.

Your initial menu will look something like the figure shown on the following page.
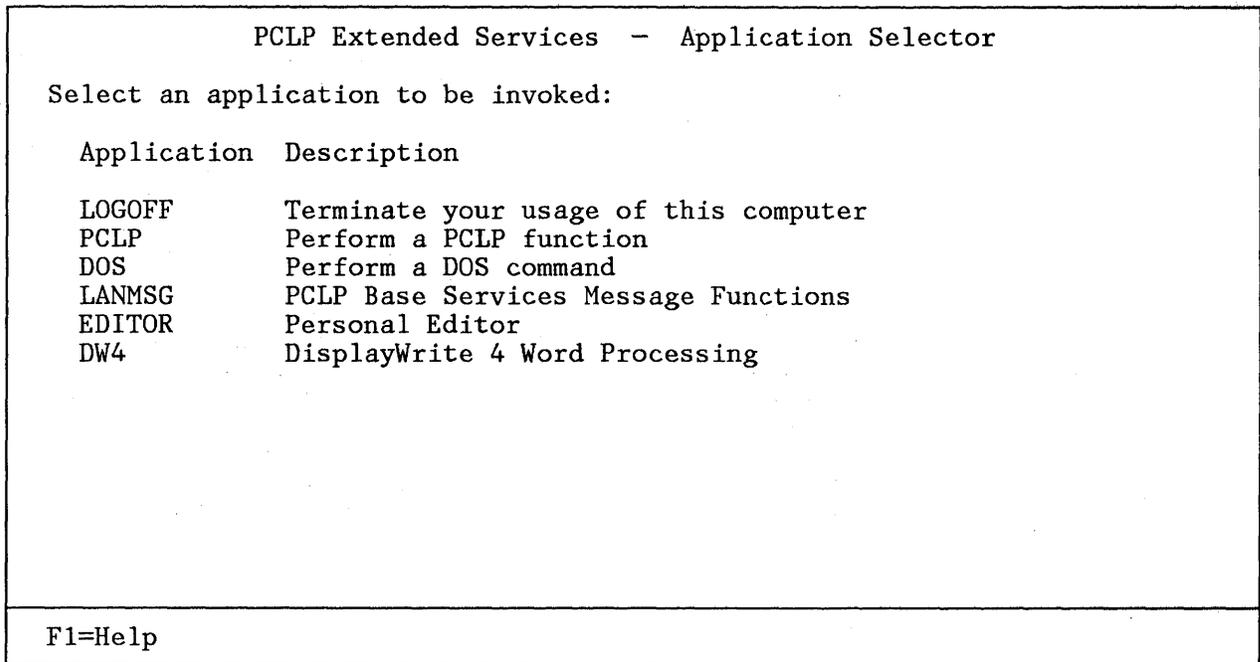
```
┌─────────────────────────────────────────────────────────────────────────┐
│          PCLP Extended Services  -  Application Selector                  │
│                                                                           │
│  Select an application to be invoked:                                     │
│                                                                           │
│    Application  Description                                               │
│                                                                           │
│    LOGOFF       Terminate your usage of this computer                     │
│    PCLP         Perform a PCLP function                                   │
│    DOS          Perform a DOS command                                     │
│    LANMSG       PCLP Base Services Message Functions                      │
│    EDITOR       Personal Editor                                          │
│    DW4          DisplayWrite 4 Word Processing                            │
│                                                                           │
│                                                                           │
│                                                                           │
│                                                                           │
│                                                                           │
│                                                                           │
├─────────────────────────────────────────────────────────────────────────┤
│  F1=Help                                                                  │
└─────────────────────────────────────────────────────────────────────────┘
```

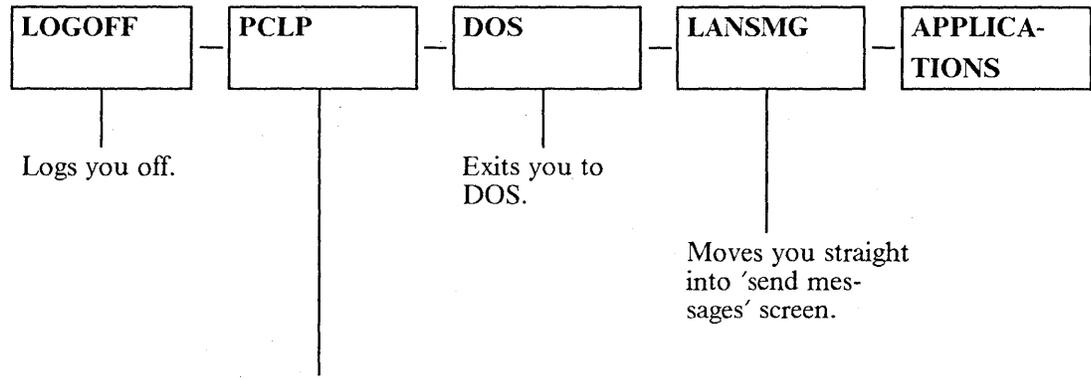Figure 56. A typical Application Selector menu

As you can see from the above figure, you are given some standard options, as follows:

- LOGOFF........selection of this logs you off the system and
  redisplays the sign on screen

- PCLP............ this takes you into the PCLP Functions menu
  for tasks relating to your user set up; you
  may use these functions frequently, rarely or never

- DOS............ this moves you into DOS; to get back to this menu
  type EXIT on the DOS command line. You may never
  use DOS, in which case this option may not appear
  on your Application Selector at all.

- LANMSG........again, this may have been removed from your choice
  of options. It takes you into
  the PCLP Messaging Facility, to be covered later.

- EDITOR....... this is an application installed for you by the
  LAN Administrator.

- DW4.......... as above

8.1.4   User Menu Map with Landmarks

To help you find your way through the Menus that await you, here is a map. If you take
a little time now to get familiar with the layout of these menus, it will make subsequent
negotiation much quicker and easier!

LOGOFF	PCLP	DOS	LANSMG	APPLICA-TIONS

Logs you off.

Exits you to DOS.

Moves you straight into 'send messages' screen.

PRINTF	**USERSERV**	**FILEMAN**	**USERADMN**	**OLR**	**OVERVIEW**
Lists your current directory only.	*Users* Lists logged on users and current machine ids.	*Change* Change current fileset.	Displays your details	On-line reference.	Introduces you to PCLP functions.
Select file(s) to print.		Change current directory (use for PRINTF).	*Change* You can change your description.		
Select printer (local or network)	*Server* Lists servers in Domain.	Assign/deassign filesets for this session only.	*More* Change **logon** fileset/printer assignments.		
	Select one whose network printer you wish to work with.	*More* Change current drive.	Edit Application Selector: Reorder, Change, Add, Delete.		
	Queue Assign printers. Deassign printers: Local access or network printers.				
	Print queue management				
	Displays your print jobs for selected printer. You can Hold, Release, Cancel from here.				

8.1.5 Using the LANMSG facility

Selecting LANMSG from your menu takes you straight into the "Send Messages" screen as in PCLP 1.2. This is shown on the following page.

```
                        PCLP Base Services
                         Send Messages
              Send Message to: (* for all computers)  (..............
              Type message below:








Ctrl-Enter - Send message          Esc - Previous menu or Exit
Tab - Cursor to next field            CTRL-PgDn - Erase message
F1 HELP/MORE KEYS  F2 COMMAND LINE     F3 ADJUST PARAGRAPH
F5 RETRIEVE FIRST   F6 RETRIEVE NEXT    F7 SAVE MESSAGE

                        Characters Free 1599
```

8.1.5.1 *Sending Messages*

To send a message to another user, simply enter their userid in the required field, enter your message text (up to about a screen full), and press CTRL+ Enter to send. They must be logged on at the time.

You can send a broadcast message to everyone logged on to the LAN by specifying an * in the destination field.

8.1.5.2 *Receiving Messages*

If you can receive messages at your workstation, messages sent to you will automatically be logged into a message log file in your home fileset. (eg. CLARE1.LOG in the CLARE1 home fileset). You can look at these anytime by using the RETRIEVE options on your Send Messages screen.

NOTE:
Because the LANMSG facility bears no relation to your status as a user or as an administrator, it is treated in more detail in a separate section at the end of this chapter. Please read this if you would like a better understanding of how LANMSG works.

8.1.6 PCLP Functions

If you select PCLP from the Application Selector, you are presented with another menu, titled "PCLP Extended Services - PCLP Functions".

```
                    PCLP Extended Services  -  PCLP Functions

   Select a function:

     Function       Description

     PRINTF         Print a File
     USERSERV       Manage printer jobs and printers or list users
     FILEMAN        Allocate or Change Filesets
     USERADMN       Change passwords, LOGON allocations, applications used
     OLR            Online Reference Information
     OVERVIEW       Overview of PCLP Extended Services







   Esc=Quit  F1=Help                                          ˄
```

Figure 57. Extended Services Menu for User

These functions allow you to manage your own resources and setup, within the boundaries of what has been assigned to you. If you are a user who logs on to the LAN to access your applications, and do not need to change which printers or which applications you are using, you need never use most of these PCLP functions. However there are some you may like to use, such as changing your password and seeing who is logged on to the LAN, if you want to send them a message, for example.

If you are a more "advanced" user, you may make extensive use of these PCLP functions, to manage your own print jobs, change your directories around, and even install your own private applications on your home fileset on your program server. Here we will run through the functions as they appear on the menu:

8.1.7 PRINTF

- This lists all the files that are in your current directory, and gives you the pop up options to PRINT or END. Let us select PRINT.

- Your files are represented now in a different colour, and you are prompted to select one or more to be printed. To select multiple files at one time, highlight each one with the space bar then hit Enter once for all of them.

- Your assigned print devices are now displayed in a window, with 'Local Device' or the Network Printer Name. Select one on which to print the files.

- There is also an option 'Other', in case you want to print on to another device type, like COM1. Selection of Other will prompt you to enter the device type yourself.

- NOTE: You can only print files from your current directory, and there is no facility within PRINTF to change it.To do this, you need to go into FILEMAN. Most printer related functions are accessed under USERSERV, and still others under USERADMN. We will cover these presently.

8.1.8 USERSERV

Under here you will find nearly all the printer related functions, such as print queue management and assigning printers. The only non- printer related function under here is the listing of logged on users.

- Select USERSERV from your Application Selector.

- Automatically you are displayed a screen listing your currently assigned devices and printers, and the id of one of the print servers.

- To list logged on users and their current machine ids, select USERS from the action bar, then 'List logged-on users' from the pop down window. The list is now displayed.

- Before you do anything with your printers, you need to select the server which shares the printer with which you want to work. The mandatory Server - Printer order is not clear from the Action Bar where Server and Printer appear side by side, but you must follow this order.

- To do this, Select SERVER from the Action Bar, then from the pull down window, "Select Server id".

- Presented is a list of ALL the servers in the domain, which may well include servers which have nothing to do with printer sharing and nothing to do with you.You need to know which server id you should be using; if you do not know, ask your LAN Administrator.

- Having selected a server id (only one at a time), you are brought back to the Action Bar within USERSERV again. Select QUEUE.

- The pull down window offers three options to you:

  - Print Queue Management

  - Assign Printers

  - Deassign Printers

    ▲ If you select Print Queue Management, you will be displayed a list of all your print jobs currently in the print queue on the previously specified print server. Only jobs generated by you will appear, so you cannot jump the queue over someone else's job. From here you can HOLD, RELEASE or CANCEL your print jobs. You cannot pause printing on a network printer; only an administrator can do this.

    ▲ Assign Printers: if you have an LPT device that is not assigned to a network printer, to which you have been given access by the administrator, you can assign the printer to the device here. You do not have to do this; the administrator will probably have already done it for you.

    ▲ An unassigned device is defaulted to being a Local Device; if a device is already assigned to a network printer, you must deassign it first, before reassigning to another one!

    ▲ The menus take you step by step through this procedure.

8.1.9 FILEMAN

As the name actually suggests, FILEMAN is all about handling your filesets, drives and directories. Having selected FILEMAN from the Application Selector, you are presented with a screen displaying your current drive, fileset and path leading from one to the other. Select CHANGE from the Action Bar, to view the options available under FILEMAN:

- **Make fileset current** This option presents you with a list of your assigned filesets, from which you select one to be made current.

- **Change your current directory** Only use this if you know the name of the directory you want to move to; you are not presented with a list for selection, but with an empty field. This can be used to move you from one directory to another within your current fileset; it will not move you outside that fileset. The directory entry you make must always begin with a backslash (from the root of your current fileset); it will not accept a drive specifier.

- **Assign Filesets.** Assign Filesets presents you with a list of all the filesets to which you have access but have not assigned to a drive for use. First you select a fileset, then a drive to assign it to. You select the drive from a presented list of drive letters that are still available. You will not need to use this function if your LAN Administrator has already set up the filesets to which you have access, to be assigned to you automatically when you logon.

- **Deassign Filesets** presents you with a list of your currently assigned filesets. Deselect with space bar and enter.

- The last option under FILEMAN is Change Current Drive, which can be found by returning to the FILEMAN action bar, and selecting MORE.

- As with change current fileset, this gives you a list of all your assigned drives. You select one to be made current.

8.1.10 USERADMN

The facilities offered in here to you as a user are all about customising your logon environment; changing your password, logon printer and fileset assignments, and your own application selector.

- Selection of USERADMN from your PCLP menu, takes you into a screen displaying your user name, used previously at installation to describe your user id. It also tells you the id of the server on which your home fileset resides, your privelege level "normal", and if you are required to use a password (usually YES).You cannot change any of these things from here.

- The options on the action bar here are simply END, CHANGE and MORE.

- Select CHANGE from the action bar.

- A pop down window appears from which you choose "User Details" or "Password Details".

- Selection of "User Details" presents you with one entry field, containing your user name/description. You can type over it with something else. This is the only User Detail you can change.

- "Password Details" lets you change your password, as long as you have one with which to trade. You are asked to enter your existing one, then the requested new one. You cannot create a password if you have none assigned; only an administrator can do this.

- Back at the action bar, select MORE; from in here you can change the filesets and printers which will be automatically assigned to you when you logon. You can also edit your application selector.

- If you choose "Fileset Assignments", you will be presented with a list of your current LOGON fileset assignments. This is not covered in the file management offered under FILEMAN.

- Select Change from the new Action Bar, and you will now see displayed a list of the filesets you have available to assign. You can select one or more from this list, to be added to your Logon Fileset assignments.

- "Printer Assignments" first displays your current logon printer assignments.

- When you select Change from this Action Bar, it displays a windowed list of the LPT devices you still have not assigned.

- Select the LPT device you wish to have assigned to a network printer.

- Now you are presented with a list of the network printers that have been made available to you; select one to be accessed via the LPT device you have just chosen.

- **Next time you logon, the selected filesets and printers will be automatically assigned to you and ready for you to use.**

8.1.10.1 *Application Selector*

- Go back to the USERADMN action bar, select MORE, then from the pop down menu, Application Selector.

- The action bar choices here are Reorder, Change, Add, Delete.

- At this stage you are displayed your current Application selector menu._

  - Reorder: Allows you to change the ORDER of the applications on your menu, except for LOGOFF and PCLP which cannot be moved or deleted. From the presented screen of your current application selector, select the application you want to move. Your list of application on the selector is redisplayed; now select the application **above which you want to place the application you have selected for moving.** If you want to move an application much nearer to the top of your list, you will have to go round this loop several times.

  - Change: This is only for your private applications, not for the standard shared. It allows you to make changes to the filesets linked to your application and so on.

  - Add:

    ▲ Shared Application: Select from the presented list of applications that have been made available to you but not yet added to your application selector. Selection here immediately updates your Application Selector.

    ▲ Private Application: This choice takes you through the steps for defining an application, which the administrator does on your behalf for shared applications. If you will be defining private applications for yourself, refer to Chapter 9, "Working with Applications", for instructions on how to do this.

  - Delete : Displays your current applications on the selector, and prompts you to select one for deletion. You can only select one at a time and are asked to Enter to confirm.

8.1.11 Getting Help

PCLP has extensive and useful online Help, accessed always of course by the SAA approved F1 key. You can access Help from wherever you like, and the HELP text you are given will always refer to the word on which your cursor currently rests. Mostly this is excellent, but beware of the frustrations of umpteen explanations of "END"!

Other forms of HELP are offered from the main Application Selector through the options OLR and Overview.

8.1.11.1 OLR   *Online Reference Manual*

This online document details all the functions in PCLP 1.3. You can use the table of contents or alphabetical index to locate the function you want to read about.You can delete this application from your application selector if you wish.

8.1.11.2 *Overview*

This is a tutorial to welcome and introduce you as a new user to the wonderful world of PCLP 1.3. It is worth going through at least once, to orientate yourself before you start exploring all the menus!

8.2 *Administrating the LAN (for Administrators)*

For this section let's assume you are have administrator privileges in Extended Services. You have already installed the software and defined the resources and users in your domain. Now you are ready to maintain the domain on an ongoing basis, and do your own tasks as well. In this section we will guide you through the menus to access the functions you will be using for maintaining the LAN once it has been installed and defined. This includes:

1. Logging on as an Administrator

2. Application Selector Menu for Administrator

3. Administrator Menu Map

4. Maintaining the LAN with ADMINSRV

   - Date

   - Shutdown

   - MANAGE

5. Printer Management under USERSERV

8.3 *Logging on*

With your administrator sign-on, you can log on to any workstation on the LAN, and any workstation or server within your domain. You can log on at any machine and manage the domain controller information and carry out administrative tasks. Beware, however, that sometimes you may log on to a server or domain controller and then find there is not enough memory available to perform all the administrative tasks. There are two ways of avoiding this:

   - Log on at a workstation instead. Remember you can do all of your administrative tasks remotely; you do not need to log on directly to the domain controller or other servers.

   - During the boot up process of the domain controller or any Extended Services server, you are asked to select "Use Server Only" or "Start the network"

8.3.1.1 Start the network.

This actually loads Extended Services, and goes on to present the logon screen.

8.3.1.2 Use Server Only

Having selected this you are presented with an Application Selector menu. From here you have the same functions and authority as if you had signed on as an administrator, and can create and change definitions in the domain. With this option, note that:

- Only Extended Services has not been started; the machine is on the network at a Base Services level. Thus its shared resources are still available for defined network users.

- If you use this option on the domain controller, users in the domain will not be able to log on. This is because their logon is normally validated through an Extended Services function in the domain controller; if this is not active, user logon cannot be validated. In this case the user will get a windowed error message, "Domain Controller is in Administrator Mode".

- The third point is one of security; to prevent anyone from booting up the machine and using this option, remember to make secure your domain controller and other servers, either with password protection if they are Personal System/2 's, or by locking them away somewhere. This is another reason for dedicating your servers.

8.3.1.3 Cache Options

On a server, after you choose to "Start the Network" and before the logon screen appears you are also prompted to opt for cache or not.

- If you accept cache, it will take the cache value specified in the NET START /CAC: parameter, including whether it is to be held in real or extended memory. Defaults for cache and how to change them are covered in "Tailoring NET START parameters" in Chapter 6.

- You can choose not to have cache loaded for this logon session; this is a useful option if you need to perform certain PCLP functions and are concerned about how much memory is left for your use.

8.4 PCLP Extended Services Menu

Your Application Selector menu will look the same as any user's at this stage; it is only on selecting PCLP and accessing the PCLP Extended Services menu that you will notice any differences. This menu offers you all the options on the user's version, plus two more, PRINTDF and ADMINSRV. You will soon get to know the latter very well.

LOGOFF	PCLP	DOS	LANSMG	APPLICA-TIONS

Logs you off.

Exits you to DOS.

Moves you straight into 'send messages' screen.

printf   userserv   fileman   olr   overview   ADMINSRV   PRINTDF

END   DATE   SHUTDOWN   MANAGE

USERS	PRINTERS	MACHINES	APPLICA-TIONS	FILESETS	IMAGES
Add new user.	Define new network printers.	Define new machines:	Define new applications.	Define new fileset. Maintain	Define new image for RPL c diskette.
Maintain user details.	Delete printer definition.	Servers - RPL workstations.	Maintain application details.	Maintain	Use existing de finition imag file.
Change privilege level.	Update printers shared at logon.	Change machine definition.	Change and delete applications.	*More* Change user access to fileset.	
Reset password.					*Make* RPL image
More Change logon fileset/printers.			*More* Assign more filesets for application.		IPL diskette
Edit Application Selector (add - delete).					
Edit user logon profile.					

8.4.1 PRINTDF

Use this option to print off all the information held on the Domain Controller. It is a good idea to print this off when you first set up the LAN and after making any changes; it makes for a primitive but reliable form of backup.

8.4.2 ADMINSRV

Selection of this option takes you into the hallway of Administrator Services: here you get displayed a list of all logged on users, with their current machine ids and applications they are running, and on the Action Bar presented you have options to End, Date, Shutdown, Manage.

When you select Manage you will have reached the inner rooms of Extended Services, but first let us take a look at the other options.

8.4.3 End

This eventually lets you exit "System Management Services" and be returned to the Application Selector.

8.4.4 Date

Here you can set the system time and date; the domain controller is synchronised immediately, followed by all the domain servers. Workstations are synchronised when they are next logged on to the domain by a user.

8.4.5 Shutdown

Here you can change the "logon status" within the domain, between "enabled" and "disabled". If you disable logon status, no more users can log on to the LAN, and users who are currently logged on will not be able to log back on. This function will not log them off, however. You may like to use the LANMSG function to send a broadcast message asking users would they please mind logging off.

8.4.6 MANAGE

Selection of this takes you into another realm of options for defining and maintaining your domain, all of which are covered in Chapter 6, "Defining your LAN Environment".

Here we will concentrate on the ongoing maintenance functions, and where to find them.

8.4.6.1 Users

Having defined users for your domain, you may need to alter their environment from time to time. The menu map (see fig.) lists the functions available here:

- You can reset a user's password or decide to assign one at any time.

- You can change the privilege level of a user between "normal" and "administrator"; fortunately users cannot do this for themselves.

- Selecting "More" from the Action Bar, you can

  - Change a user's LOGON fileset or printer assignments. These will be assigned to him/her by default at logon. These may be overwritten during a logon session but will be reactivated at the next logon.

  - Edit a user's Application Selector menu. You can add or delete applications for a user, but you cannot change application details from here or reorder their menu for them.

  - Edit a user's logon profile. Apart from all the assignments, a user has a logon batch file which is executed when they log on. All that is in there by default is

the setting of the text editor that will be used, but you can put anything you like in here. It is intended to be used for setting a user's environment variables.

8.4.6.2 Printers

- Definition of new network printers is done here, and is detailed in Chapter 7.

- "Maintain Printer Details" is somewhat limited; for an already defined printer all you can change is its description. This means that if you want to change the DOS device assignment or Form Feed setting for a network printer, you need to delete the definition and recreate another.

- You can determine which printers are shared at their print server startup, by updating the "shared printer list". A print server may have more than three printers defined to it, but only three physically attached and shared on the network.

- Most of the printer maintenance functions are to be found within USERSERV from the PCLP menu; these are covered later in this chapter.

8.4.6.3 Machines

Having defined new servers and RPL workstations in here, (cf. Chapter 6), you may want to change or delete machine definitions. Here are a few points to note:

Changing machine details

- For a defined server, you can change its description and whether it supports Remote IPL; you cannot change its machine id, or change it to a workstation. If you were going to change it to a workstation, remember that unless it is to be a RPL workstation, it will not be defined here anyway.

- For a defined workstation (always RPL), you can change its description, LAN adapter number and selection of Expanded Memory Support. Again, you cannot change the machine id and not surprisingly you cannot make it a server.

Deleting machine details

- To delete the definition of a server, the server in question must be active on the LAN. To avoid frustration, ensure that before you physically disconnect the server, you delete all its filesets and its definition.

- A RPL workstation does not need to be active for you to do this.

8.4.6.4 Applications

Defining applications is covered in detail in Chapter 8, "Working with Applications"; here we will just look at maintenance.

Maintaining application details

- You can change all aspects of an application definition, such as the id given to it, its description, the DOS command line which loads it, and the fileset which is made current when it it is loaded. You can also edit the batch file which executes to start the application (this contains the DOS command line).

- Delete an application definition from here. This does not delete the associated filesets.

- By selecting "More" from the Action Bar, you can specify extra filesets to be linked with the application, so that they are automatically assigned to the user on request of the application itself.This can be useful if for example you have a new directory of datafiles or a new library of documents that you would like to be shared along with the application that goes with them.

8.4.6.5 Filesets

As with applications, we will only look at maintaining filesets here, since definition has been covered already (Ch.6).

Maintaining fileset details

- For a defined internal fileset, you can change its description and its share mode (static or dynamic).

- For an defined external fileset, you can edit the batch file which contains the NET USE command to access the external resource.

- By selecting "More", you can select or deselect users to have access to this fileset, determine their level of access (Read only or Update), and change the access rights of currently selected users.

8.4.6.6 Images

Definition of images for use in RPL workstations or as IPL diskettes is also covered in Chapter 6.

- Selection of "Use existing definition" then "Change" will give the option to change the description of an existing image file, and to edit the definition file of which it is made.

- You can also delete an image file from here.

- For future reference, note that when you create a DOS diskette image for RPL or IPL diskette use, the level of DOS used must match that under which the PCLP Servers are installed. Therefore, if you migrate your LAN servers on to another level of DOS, you will need to recreate all diskette images. You can still use the definition files provided without having to make changes.

8.4.7 Printer Management in USERSERV

Although printers are initially defined under ADMINSRV, they are controlled on an ongoing basis from within USERSERV. To access these printer control functions, you need to return to the PCLP Extended Services menu, select USERSERV, (as shown), and from the action bar presented, "Admin". Normal users do not see this option in their own USERSERV.

LOGOFF	PCLP	DOS	LANSMG	APPLICA-TIONS

Logs you off.

Exits you to DOS.

Moves you straight into 'send messages' screen.

printf   USERSERV fileman   olr   overview   adminsrv   printdf

users   servers   queue   ADMIN
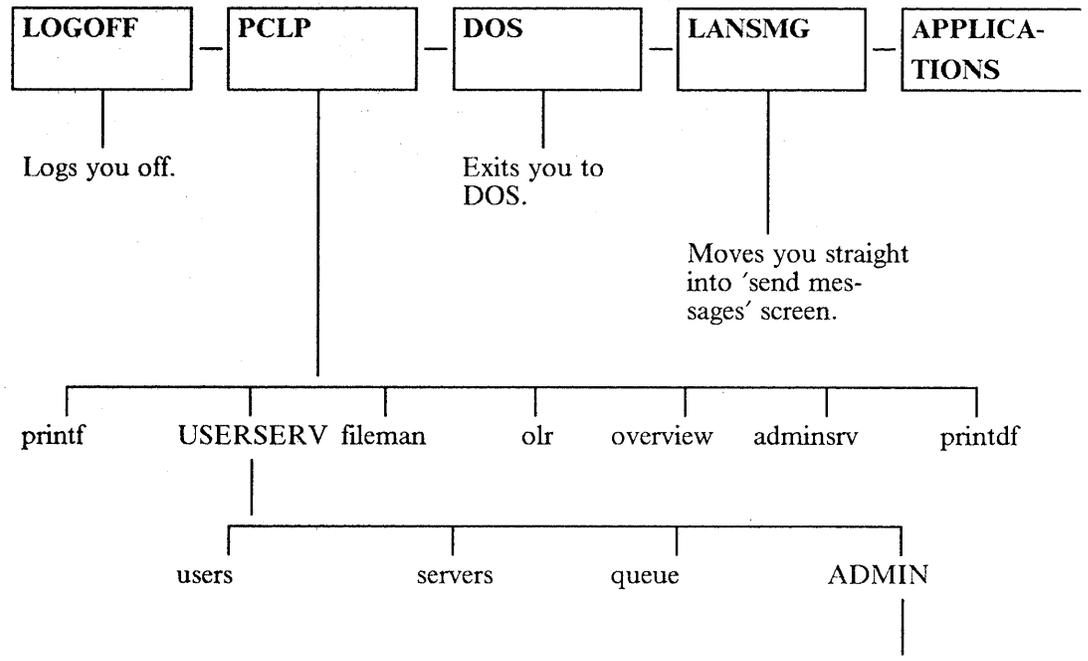
USERS	SERVER	QUEUE	CONTROL	PAGES
Lists logged on users and applications.	Select server to manage its print queue.		Stop or start printing on network printer.	Control separator pages.

8.4.7.1 Admin under USERSERV

From within "Admin",you can do the following tasks:

Users: List logged on users and the applications they are running. You see the same list when you select ADMINSRV - Manage.

Server: You are presented with a list of all servers in the domain. Select a print server whose shared printers you wish to control; you must select the server first before you can do anything to its printers.

Having selected a server you are given a screen of details telling you which printers it is sharing, and their status, such as "printing", "paused", "in error".

Queue: Obviously enough, you would use this option for Print Queue Management; less obviously, you also select it to assign and deassign printers.

● Print Queue Management

After selecting a print server you are displayed a list of all the jobs in the server's print queue, along with the id of the printer the job is for, its size and the time at which it was sent. Along the action bar are offered the following options:

■ Hold.This will hold a selected job in the queue until you release it.

■ Release. This will replace a held print job back in the queue.

- Cancel. Use this to cancel a print job.

- Next. This moves the selected print job to the front of the queue, but waits until the currently printing job has completed.

- Immediate. This interrupts the job that is being currently printed, and starts printing the selected one immediately. When it has finished printing, the disrupted job is resumed from the beginning.

• Assign/Deassign Printers

This option is for your personal use only, and has nothing to do with other users. You select a device (eg.LPT1) on your workstation t assign to a network printer, then from the presented list of network printers available to you, select one to have assigned. This assignment overrides whatever logon defaults you may have set up, but lasts for the duration of this logon session only.

Follow the same process to deassign a printer from a device. A non-assigned device defaults to accessing a local printer, so if you have all your devices assigned and want to print locally, use this option to deassign a device.

Control: From here you can stop,start,pause or resume printing on individual printers or on all the shared printers on a selected print server.

Pages: Here you can enable or disable the printing of separator pages on a specified network printer; if you have several separator pages defined, you can select one of these from a presented list.

8.4.8 Conclusion

As you can see, an administrator has considerable powers on the LAN, especially in terms of the print queue management; if you decide to nominate more than one administrator, be sure they will not abuse their power!

8.5 PCLP LAN Message Facilities

This section is orientated towards administrators and technical support people who will either be using or advising on the use of the PCLP 1.3 LAN Message facility.

One of the standard options on each user's Application Selector is LANMSG, described as "PCLP BASE SERVICES MESSAGE FUNCTIONS". The base services part is significant. Although this facility is accessed from the Extended Services menu, it is not an Extended Services function. Unlike all the other PCLP Functions, which are related specifically to user id, this one is dependent on the configuration of the machine on which it is being run.

8.5.1 Planning for LANMSG use

The LANMSG function is optional, and can be removed from the user's Application Selector altogether. First you need to decide if users need to use it, and in what way.

In Extended Services, workstations can be started up as redirectors or receivers (not messengers), and it worth pointing out that the default configuration created for an RPL workstation or for a system diskette created under PCLP, is a redirector. The nature of this configuration determines the LAN message capabilities of the workstation and thus of the user logged on at it. The main point to note is that receivers can send and receive messages; redirectors can only send.

8.5.2 Sending Messages:

- You can only send messages to user ids that are logged on.

- You can only send messages to user ids on receiver machines.

- You can send messages to an admin user id logged on to a server or domain controller, but not to the server or domain ids.

- You can send messages to any userid on the LAN, regardless of their domain. LANMSG is from Base Services and therefore outside the domain idea altogether.

- If you send a message to a Base Services user-workstation, send it to that Network Computer Name as in PCLP 1.2

- There is no point in trying to send a message to users on redirector workstations; they will not get it, or even know that you were trying to send to them.

8.5.3 Receiving Messages

- You can only receive messages in any fashion if you are logged on to a receiver configuration workstation or above. Remember that only administrators can log on to servers or the domain controller.

- If you log on to a redirector workstation, you will not know if someone is trying to send you a message. To find out in advance whether you can receive messages, try sending yourself a message, or exit to DOS and look at your NET START parameter in the autoexec.bat. If you are a RCV you can; if an RDR, you cannot.

8.5.4 Saving Messages

- Under this LANMSG facility, the default for receiving messages is that they are automatically redirected to a .LOG file on the user's home fileset. (eg. Y:\CLARE1.LOG) .They are not displayed on the screen on arrival, nor is there an option to make this happen.

- When a message arrives for you and is redirected to the log file, your workstation bleeps at you. That is all the notification you get.

- To look at the messages in the log file, use the RETRIEVE options on the Send Messages Screen. These will display your received messages and allow you to forward them if you wish.

8.5.5 Logging Messages to another File or Device

- You can change the file for logging messages by typing over it on the Save Messages Screen where it is displayed. You can replace it with another filename or with a device name, although this is not offered to you as an option on the screen information.

- If you change it for another filename, ensure that the file already exists, and specify the drive and path to that file. Remember also that the drive must be assigned to that user id.

- This only changes the file for the duration of your session; when you logoff and logon again it is reset to the original default.

- To log messages to a printer for that session, type in the device name (LPT1, LPT2 etc) in the entry field for the filename. This should be defined as a local printer; you can log messages to a defined network printer but strange things may happen!

8.5.6 Changing the LOGON defaults for logging messages:

If you want to have a user's messages logged to a different file or to a particular device so that s/he defaults to this set up at log on, you need to sign on to the domain as an administrator and follow these steps:

- Select PCLP; ADMINSRV; USERS.

- From the displayed list of defined users, select the one whose set up you wish to change.

- Select "Maintain User Details", then "Change".

- Select "Edit user profile".

- You are now presented with this file in your DOS editor, probably edlin. It may have only one entry, that of setting the editor. You need to add a command to this file, so that it will be activited when the user logs on.

- Insert a NET LOG command, with the parameters to specify the filename or device you wish to be used.

Eg. To specify the device LPT1, enter:

NET LOG LPT1

Eg. To specify the file Message.log on the user's Y drive:

NET LOG Y:\Message.log

8.5.7 Logging Messages to a Local Printer

This can be a reasonable option for a user who will always be working on a machine with a local printer attached. When a message arrives it will automatically start to print out, so that if the user was away from his/her desk when it arrived, s/he will see it at once.

There is one point about this logging which is worth noting; the message print files do not have any form feed characters separating them, so different messages will be on the same page, and the printer will not do a page eject after a message has printed. Thus users need to check the paper in their printer before printing out a document on it.

(We did try to make the NET LOG command execute a batch file, which would call for a form feed after each print job. (How to specify this should be detailed in the Technical Reference for the printer, as in the Quietwriter III Technical Reference, for example). However, the system only recognises the file after the log command as a message file, and thus puts your messages in it rather than executing it. There may be another way round this, which we did not find in our admittedly brief experiments.)

The inevitable conclusion from all this is clear: if you plan to use the LANMSG facilities in your LAN set up, configure the workstations as RECEIVERS! The price you pay for this is about 18K of memory (see Chapter 12, Memory Requirements), and there's the rub.

9.0 Working with Applications

In this chapter we will look at different categories of application you may wish to install on your LAN, and discuss the implications of each. We will then give detailed examples of how to install some typical applications, namely DisplayWrite 4, Personal Editor, COBOL/2 and C/2 Compiler. Installation of 3270 Emulation v3.0 is covered in the following Chapter, "Working with Communications".

9.1 PCLP Application Installation Utility

This utility is provided with the PCLP 1.3 diskettes. You can use it to install applications that are designed to be installed by it, such as the IBM Compilers. These packages contain a special file called the PROFILE.NIA , which runs the procedure for installing the software on a LAN. This file is compatible with those used with the PCLP 1.2 Installation Aid, and under PCLP 1.3 it is created using the Application Installation Utility.

You do not need this PROFILE.NIA in order to install an application under PCLP 1.3. If the application you are installing does not contain a PROFILE.NIA, there is no need to create one. You can simply install and define your application as detailed in the rest of this chapter.

Details of how to run PROFILE.NIA under the Application Installation Utility are given in the example in this chapter on installing C/2 Compiler.

For detailed technical information on this utility, read the relevant Chapter in "PCLP 1.3 Reference", which explains to application developers how to create Profiles for their own applications.

9.2 Types of Installed Application

When thinking about applications and how to install them under PCLP 1.3, it helps to divide them into three categories. You may want to set up an application to be;

1. **Shared**
   This is an application that is shared from a program server to selected users in the domain.

2. **Private**
   This is an application installed in a user's private directory, such as his/her home fileset, for his/her exclusive use. The home fileset exists on a program server.

3. **Local**
   This is an application that exists on a user's local disk media; which rather defeats the object of user mobility and thus goes against the PCLP 1.3 grain.

We will look at each category in detail here, with emphasis on installation procedures.

9.3 Shared Applications

It is the administrator's task to install applications to be shared in a domain on network servers, and to setup and control user access to these applications. To install a shared application on the LAN, follow this process in sequence:

1. Decide which program server in the domain is to share the application

2. Create an application subdirectory on this server for the application. As with PCLP 1.2, the installation procedure creates an APPS subdirectory on the server; you may choose to install your applications under here.

3. Following the program documentation, install the application into that subdirectory. Understand what the install procedure is doing; it maybe that simply copying the files across is sufficient, as we will do in the DW4 example.

4. Through PCLP Administrator functions, define a fileset to hold the application.

5. Define user access to this fileset.

6. Define the application to the Domain.

7. Prepare the application for adding to an Application Selector.

8. Select users to add this new application to their Application Selector menus.

As an example, we have detailed the installation process required to install DisplayWrite 4 on page 127.

9.3.1 Using external resources for a shared Application

This set up would mean that the application program you want to use physically resides on a server outside your domain. This might be on a Base Services server, or an OS/2 LAN Server, for example. Such a setup somewhat defeats the object of domains as logical work groups, but sometimes it may be required and it can be done.Here we are assuming that the application has been installed on an external server already:

* Find out on which server and in which subdirectory the application code exists.

* Select PCLP - ADMINSRV - MANAGE - FILESETS - 'New Fileset Details'.

* Define the fileset for the application, specifying it as 'External'.

* Having defined the fileset as external, you will be asked to edit the batch file which will generate the appropriate NET USE.

  (Working with external resources restricts us to Base Services, hence the use of NET commands. For more details on this please refer to Chapter 7 and the section on 'Defining External Resources'.)

* Ensure that the server on which the program fileset resides issues a NET SHARE for this resource during its boot up procedure. This should be done in a file called EXTSHARE.BAT in the \PCLP13BS subdirectory on that server. (See Chapter on External Resources for details on how to do this.)

* Prepare for the application to be added to users' application selector menus; the application definition process is the same for any shared application. It is only the filesets that are external and thus treated differently.

* Select users to have the application on their menus.

9.4 Private Applications

This is an application which is installed in a fileset which only one user has access to, such as his/her home fileset, and is thus for the private and exclusive use of that user. Remember, however, that this is not the same as a local application; a fileset of any kind always resides on a program server, never in the user's local disk media. Thus a user always accesses a private application through the LAN.

A user can install a private application for him/herself, or an administrator can do it for them. There are two options here, of which the first is far simpler: in your role as administrator (forgetting ids for the moment) you could sign on to the LAN using the id of the user in question, and proceed from there; the other option is to sign on with your own administrator id and proceed as if you were creating a shared application for that user's exclusive use. In either case the user in question cannot be logged on while this is going on. Here we detail both methods:

9.4.1 Installing a private application for your user id:

9.4.1.1 Assumptions

- You are working at a machine with a diskette drive.
- You are one of the following:
  - A 'normal' user logged on with your own id, wanting to install a private application for your own use.
  - An administrator logged on with your own id, intentions as above.
  - An administrator (in person), logged on with the user id of the user for whom you will install a private application.You need to log on at a workstation for this, since a user cannot log on at a server.

9.4.1.2 Installing the application software

- From the Application Selector, exit to DOS.
- Your current drive in DOS is your home fileset; on a workstation this will probably be Y: (where LASTDRIVE = Z in the machine's config.sys)
- Make an application subdirectory to contain the application; note name and path, you will need both later.
- Follow the program documentation to install the files from the application program diskette(s) into the created subdirectory, ensuring you understand what the program install procedure is doing. It may be sufficient simply to copy the files from diskette to directory using DOS commands.Note also the command or batch file required to load the application.

9.4.1.3 Defining the application for use

- Type EXIT to return to the Application Selector.
- Select PCLP - USERADMN - MORE - 'Application Selector'.
- From the Action Bar select 'Add'

- Select 'Private Application' from the hang-down window.

You are now presented with the same series of application definition screens you get for shared applications, and prompted for the following:

- **Application id:** this is the name which will appear on your application selector.

- **Description:** this is optional and also appears on your menu.

- **DOS Command Line:** here you need to specify the name of the batch file in your application subdirectory which loads the program, or the loading command with any parameters you require. This command line will be processed when you request the application. Unlike in the definition of a shared application, here there is no internal batch file for you to edit.

- **Collect Parameters Y/N:** put 'yes' if you want to specify certain parameters each time you ask for the application.

- **Set Current Fileset Y/N:** this option can change your current fileset when you load the application; if you do not choose it, your current fileset will be your home fileset.

- **Additional Filesets Y/N:** normally you would specify 'No' here, unless you would like other filesets to be automatically assigned to you when you load up the application. If you choose 'Yes', you will be asked later on to specify which filesets you would like.

- **Program Package Fileset screen:** displayed now is a list of the filesets available to you. Select your home fileset.

- Now you are prompted for the path to the program code within this fileset; eg. \pe2', where pe2 is the name of the application subdirectory you created.

- **Specify Drive Y/N:** Unless your application specifically requires a set drive, leave this as 'No'. The PC LAN Program will assign one automatically; this will probably be Y: since the application is in your home fileset.

- Your updated application selector is now displayed, with your application added. You are also told that this is a private application.

9.4.2 Installing a private application for another user:

This takes much longer, and if you have many users to do, can get rather complicated. The main limitation is that the application id you define for each user has to be unique in the domain, since it is stored centrally in the domain control database! However, if you are installing a single application for one user on a one time basis, you could do it like this. Several steps need to be taken:

9.4.2.1 Accessing the user's home fileset:

If you can log on to the server on which this user's home fileset resides, proceed as follows:

1. Log on at this server with your administrator id.

2. Go into DOS from your Application Selector, and go into C:\PCLPUSER\USERxx, where USERxx is the userid you are working with.

3. This is the user's home fileset, where you will install the private application for them.

If you cannot or do not wish to log on at the server which contains the user's home fileset, you can gain access to it across the LAN instead as follows. For the sake of brevity, assume the user's id is JODI.

1. Log on as administrator to your domain, from any workstation on the LAN.

2. From the menus, select PCLP - ADMINSRV - MANAGE - FILESETS.

3. 'Maintain Fileset Details'.

4. From presented list of filesets in the domain, select JODI.

5. Select MORE from the Action Bar

6. Select USER ACCESS from the hang-down window.

7. From the presented list of user ids, select yours.

8. Change the default Read only access to U for update.

9. Now you have access to Jodi's home fileset.

10. Hit several Ends, Enters and Escapes to return to the Application Selector.

Now you need to assign this fileset to a drive.

1. Select PCLP - FILEMAN - Change.

2. Select 'Assign Fileset'.

3. From the presented list of filesets that are available to you, select JODI.

4. From the presented list of available drive letters, select one that appeals. Make a note of it; you will need it once you are in DOS.

5. Go back to the Application Selector and exit to DOS.

6. Change your current drive to the one you selected earlier; you are now in the home fileset JODI.

9.4.2.2   Installing the Application Software

Here the procedure is the same as if you were installing the application in your own home fileset.(see above)

9.4.2.3   Defining the Application in the Domain

- You do not need to go through the fileset definiton stage for a private application as the fileset is already defined; as JODI in this case.

- Go straight into defining the application, which is accessed from PCLP - ADMINSRV - MANAGE - APPLICATIONS - 'New Application Details'.

- From here on the screens are the same as for defining a shared application, and are detailed in the DW4 example in this chapter. (See DW4: Defining the Application in the Domain).

- At the end of this process, the application has a name, description, and an internal batch file to call it up from an Application Selector menu.

9.4.2.4   Selecting user to access the application

As with a shared application, you now need to select the user (one at a time) to have this application on their Application Selector menu.Starting from back at YOUR application selector, select as follows:

- PCLP - ADMINSRV - MANAGE - USERS - 'Maintain User Details'.

- JODI from the presented list of users to maintain

- 'More' from the Action Bar

- 'Application Selector' from the pop down window.

- 'Change' from the Action Bar

- The application name from the presented list of applications defined in the domain.

Now you are presented with Jodi's updated Application Selector menu, and when she next logs on, she can access the new application from there.

9.4.2.5 Points to Note

- You cannot work on a userid if the user that owns it is logged on.

- When you are defining the application, the server which holds the user's home fileset must be active on the LAN.

- For each private application to be installed for each user, you need to repeat the above process, substituting the home fileset name and userid.

- If you use this method to install private applications, remember that the application id can only be used once in the domain.

9.5 Local Applications

If you have a specific requirement for a user to access an application on his/her local disk, you can set this up. However, beware that you are outside the embrace of PCLP 1.3 in doing so, and are effectively binding your user to this machine, or at least to one with an identical application set up on its local disk. Having installed the application in a suitable subdirectory on the local disk, there are two options for user access:

1. After logging on at the machine, the user selects DOS from his/her Application Selector, and loads the application from there. (A DOS.BAT file could be written so that selection of DOS actually takes the user into another menu interface with access to local applications from there. However, this is neither tested nor supported.)

2. From their application selector, the user selects the application requested directly, and is presented it in the same way as if it were a private application on his/her home fileset. This is achieved by tricking the PC LAN program into thinking that the application is actually installed in the home fileset; on running the batch file to load the application, it changes directory to the local disk and loads from there instead. We give a detailed step by step example of how to set this up for a standalone configuration of 3270 Emulation, in the next chapter, 'Working with Communications'. It must be stressed that if you do this, it will only work as long as the user logs on at the machine which has the application installed. This effectively limits any aspirations to machine independence.

9.6 Working with DisplayWrite 4

In this section we will look at the installation procedure and some running considerations for DW4, as a shared application under PCLP 1.3. Preparing DW4 for use on the LAN requires the following steps:

1. Installation of DW4 software

2. Definition of Filesets

3. Application description

4. Final selection of users

9.6.1 Installation of DW4 software

The purpose of the following example is to familiarise you with the steps required to install DW4 under Extended Services, on a LAN. This is one method which works, although at no time does it use the PCLP Application Installation Utility. You will be working within one domain only, as applications need to be installed within the domain in which they will be used. First you need to install the program code on the designated server, then create the required PCLP 1.3 definitions on the domain controller.

1. Decide which server in the domain is going to share the program code.

2. At this machine, logon to the domain as administrator, and exit to DOS from your Application Selector.

3. Equipped with the DW4 manual and diskettes, insert diskette 1 and type A: install. This will take you through the installation of the diskettes.

   - A DW4 subdirectory is automatically created to hold the code.

   - Specify drive and directory (or only drive) to store document?

   - Mouse installed?

   - Printer type attached to LPT1 (IBM 5152-2 Graphic)

   - Printer type attached to LPT2 (IBM 5201-2 Quietwriter)

   - Printer type attached to LPT3 (IBM 3812 pageprinter)

   - Copy diskette 5. PATH already exists to install program complete.

4. Having run the install procedure, you may delete the batch file created by it, since it will not be used in this LAN environment. This batch file is called dw4.bat and can be found in the directory into which the program has been loaded (\DW4).

5. Edit the config.sys file. The DW4 install procedure may insert FILES = 16 at the end of config.sys, which overrides the FILES = 100 (minimum) that you should have already. Delete the FILES = 16.

6. From DOS type EXIT to return to the Extended Services Menu.

This completes the physical installation stage; now to define it within the LAN program. Before we continue it might be worth pointing out that we did use another simpler method of "installing" DW4 which also worked; that of simply copying the files into the subdirectory. Of course this may not be sufficient with other programs.

9.6.2 Definition of Filesets

1. Ensure that the prospective DW4 users have been defined to the domain, in terms of each user's id, password and privilege level.

2. Now we need to decide on the filesets to be used for running DW4. For this installation, let us say that we want to share three separate directories on different network drives. We will give them fileset ids as follows:

   - One subdirectory contains the program code; remember we loaded this into c:\dw4. We can call the fileset whatever we like, it is simply an identifier; DW4PROG is a logical choice!
   - We want another directory to hold the work in progress for a group of users; we can call this DW4WRK.
   - We also need a directory for a library of shell documents to be shared out; let us give this a fileset id of DW4SHELL.

1. From the application selector, select PCLP; ADMINSRV; MANAGE.

2. Select FILESETS from the Action Bar, then NEW FILESET DETAILS

3. Starting with DW4PROG, fill in the requested details.

    FILESET ID   DW4PROG
    DESCRIPTION   This fileset contains program, DW4PG
    FILESET TYPE   INTERNAL
    SERVER   DOMxx

4. ENTER:
    DRIVE FILESET EXISTS ON: C
    PATH TO THE FILESET: \DW4
    SHARE MODE: STATIC

    The PATH entry here is from the server drive.

    Choose between "static" or" dynamic" share mode; static will share the program at server load time, while dynamic share is only activated on request from the Application Selector. (Static sharing is more suitable for frequently used applications, since it assigns drives for the filesets immediately, and these remain available while the server is on. Dynamic sharing makes more sense for applications that are seldom used, since the drives will only be assigned for the filesets when a user requests the application containing them). -

5. Select a user or users to give access to the fileset which contains the program, DW4PG.

6. Give each user a level of access to this fileset: the options are simply R for read only or U for update, which relates to the R/W/C option in PCLP 1.2. For the program code, make it Read only access.

7. Repeat the above process for each of the two remaining filesets to be defined, DW4WRK and DW4SHELL.

FILESET ID:	DW4SHELL	DW4WRK
DESCRIPTION:	contains shelldoc	work in progress
FILETYPE:	Internal	Internal
SERVER:	DOMxx	DOMxx
DRIVE:	C	C
PATH:	\DW4SHELL	\DW4WRK
SHARE MODE:	STATIC	DYNAMIC
USER:	USERxx	USERxx

9.6.3 Application Description

Now we have the filesets, we need to define the application itself.(It is frustrating and impossible to do in reverse order). To add DW4 to the users' application selector menu:

1. Select APPLICATIONS from the Action Bar

2. Go into New Application Details and you will be asked for the application id; enter the name you would like to appear on the user's application selector menu. (eg. DW4)

3. You are then prompted for:

    DESCRIPTION: eg. DW4 wondrous wordprocessing.

    This is an optional entry, and will appear next to the application name on the user's application selector menu.

    DOS COMMAND LINE: DW4PG

This command is inserted into an internal batch file for the application. Presently you will edit this file to complete the parameters for DW4.

COLLECT PARAMETERS: NO

YES means that users have to 'enter parameters on to a blank unformatted line'(quote PCLP HELP) every time they load the application; hardly a friendly welcome for users of wordprocessing.

SET CURRENT FILESET: YES

This is a useful facility for DW4 which equates to an option within DW4 (Create Batch Files). It allows you to specify a default drive/directory to be made current when the user goes into DW4. It will also be the default drive/directory on which the user creates and saves documents. You will choose which fileset to make current later.

ADDITIONAL FILESETS: YES

Because of DW4SHELL. Linking this fileset to the application enables users to access the shell documents in it, by simply changing their current drive within DW4.

4.   Select from the list of defined filesets in the domain.

APPLICATION PROGRAM FILESET: DW4PROG

5.   PATH TO DOS COMMAND: \

This is NOT the same as C:\DW4, which described the path TO the fileset. This path describes the path FROM the 'root' of the fileset (DW4PROG) to the specified DOS command (DW4PG).

SPECIFY NETWORK DRIVE: NO

You can specify a network drive for this application fileset if you don't the LAN Program will assign one for you.

6.   Fileset to be made current: DW4WRK.

Choose from the list displayed, the fileset which identifies the drive/directory you want the user to default to for creating and saving documents.

7.   PATH IN FILESET TO DIRECTORY: \

Again you need to specify the path TO the directory you want WITHIN the fileset; you can leave this blank or enter the backward slash.

SPECIFY DRIVE; YES.
Of course you need to plan these fixed assignments carefully at the start to avoid conflicts, but there is a good reason for knowing your current drive in DW4; maybe as a user you load up DW4 and decide to change drive/directory. If you do not know the drive letter for your default directory, you may have a few problems trying to get back to it! If you do a directory listing before changing drives you will see the drive letter, but it is probably safer to know your drives from the beginning.

8.   ADDITIONAL FILESET SCREEN:

Choose DW4SHELL from the list of filesets so users will be able to jump into the shell library.

9.   ADDITIONAL FILESET DRIVE: H(for example)

A user can only move to a drive for which s/he knows the letter! DO NOT LEAVE BLANK.

10.   Having entered all the fileset details, we are asked if we want to edit the batch file that has been created. We do, because so far it is incomplete.

11. You are presented with the file in EDLIN.
   At this stage DW4.BAT will looks like this;

$$\text{CALL\%DRV\%\backslash DW4PG \%1 \%2 \%3 .....\%9}$$

So far this is calling up the DW4PG program from the drive to which the housing fileset (DW4PROG) will be assigned by the system (%DRV%). The other parameters only apply if you had specified YES to Collect Parameters, which you have not.

In any installation of DW4 we need to call the program, the standard user profile, the primary program path and the display mode; in this installation we also want to call a temporary program path to save 31Kb of memory in the workstation running the application.

This is the line you need to enter:

$$\text{CALL\%DRV\%\backslash DW4PG \%DRV\%\backslash PROFILE.PRF, \%DRV\%\backslash, Y:\backslash,,C}$$

The meaning and format of these parameters is detailed in the DW4 Technical Reference under Install Support. The %DRV% is replaced by the automatically assigned drive or the one you specified; do not specify one here. The only one you do set is Y:. This is always the drive for the user's home fileset,(where LASTDRIVE = Z in the config.sys on the user's workstation). Here we are using this drive for our temporary program path.

9.6.4 Final Selection of DW4 Users

Now that we have the application ready for action, we need to assign some users to have access to it.

1. Select USERS from the Action Bar, then MAINTAIN USER DETAILS

2. From the presented list of users, select one to whom you have already given access to the associated filesets.

3. Select MORE on the action bar. You can check this user's fileset access at this point, or go straight into the APPLICATION SELECTOR option.

4. Now you are presented with the user's current application selector.

5. Select CHANGE from the Action Bar, and from the presented list of defined applications, choose DW4.

6. Now when this user logs on s/he will have immediate access to DisplayWrite 4 from his/her Application Selector menu.

7. The final stage is common sense procedure **record the fixed drives you have selected for the current and additional filesets and distribute the information to the users.**

9.6.5 Network Printing and DW4.

Before a user can use any printers on the LAN, you as the administrator need to assign printers to devices for each user. Guidelines for doing this can be found in -- Heading id 'defin' unknown --

These device assignments remain active within DW4, so that a user who prints from Printer 1, 2, or 3 (as offered in DW4) will be using a local device or a specific network printer, according to his PCLP device-printer assignments.Printer specifications for each user are set up as in standalone mode, but there are a few points to remember for use on the LAN.

- You cannot use the PRINT command from DOS as before

- Do not use background printing in DW4. The LAN does its own print spooling, and using DW4 spooling as well causes avoidable loss of performance using DW4. With the LAN spooling, the waiting time should be minimal. Cutting out background printing also saves you memory.

- When specifying a network printer for a user to use from DW4, select NO for Form Feed; DW4 tags a form feed on to the end of each document anyway, so you do not need two. With PCLP 1.2 the unchangeable default for a network printer was YES for the form feed, which is why we kept getting extra separator pages between printed documents.

9.6.6 Tips for using DW4 in a LAN environment

Here are s few of the most frequently asked questions about DW4 on a LAN; there are even answers to match.

- Q: What happens if two different users try to revise a shared document at the same time?

- A: The user who got there first, even by a split second (we tested it), will get the document; the runner up will get instead a non-commital LAN system message, "Disk Error on Drive X". This user will not be able to access this document until it has been ended/saved by the other.

- Q: What happens if two users perform a GET function on the same shared document at the same time?

- A: Both can GET copies of the requested document for insertion into their own document, at the same time.

- Q: In DW4, a backup copy of a document is made every time it is loaded for revision; this gives the user the option to 'Quit without Saving' after making changes. This backup considerably slows down the loading process for large documents; is there a way to disable the function and thus stop a back up being made every time?

- A: Yes. Go into Profiles then Text Defaults. In there you will find an option y/n for Edit Copy of Document. Set this to NO. This will stop the creation of a backup copy and eliminate the options to 'Quit without Saving' and 'Save and Continue' from the End/Save menu. For further details read the DW4 Reference.

9.7 Working with Compilers

9.7.1 C/2

The following example traces the steps we took to install C/2 as a shared application on a Token-Ring Network, under PCLP 1.3 Extended Services.

1. Decide which server in the domain is going to share the program code.

2. At this machine, logon to the domain as administrator, and exit to DOS from your Application Selector.

3. Equipped with the C/2 diskettes, change the current directory to C:\PCLP13BS and type PCLPAIU. This run the Application Installation Utility. Insert first the master diskette and then the remaining diskettes. The C/2 compiler will be installed in C:\APPS\C directory. Additional .BAT and .NIA files are included in C:\APPS\BATCH.

4. Having run the PCLPAIU procedure, you can delete the batch files created by it.

5. From DOS type EXIT to return to the Extended Services Menu.

From this point on you may work on the installation from any server in the domain or workstation on the LAN, provided you log on to the domain controller as an administrator.

This completes the physical installation stage; now to define it within the LAN program.

9.7.2 Fileset Definition

1. Ensure that the prospective C/2 users have been defined to the domain, in terms of each user's id, password and privilege level.

2. From the application selector, select PCLP; ADMINSRV; MANAGE.

3. Select FILESETS from the Action Bar, then NEW FILESET DETAILS

4. Define the C fileset that will hold the C:\APPS\C directory. In this case choose Internal.

5. Enter the path: C:\APPS\C.

6. Choose between "static" or" dynamic" share mode. The best selection depends on your environment.

7. Select, from the presented list, the users to have access to the C fileset.

8. Give each user a level of access to this fileset; the options are simply R for read only or U for update, which relates to the R/W/C option in PCLP 1.2. Make it Read only access.

9.7.3 Adding C/2 Applications to the Application Selector

Now we have the fileset, we need to define the applications themselves. You will need to repeat the same steps for each application.

1. Select APPLICATIONS from the Action Bar

2. Go into New Application Details and you will be asked for the application id; enter the name you would like to appear on the user's application selector menu. The applications are:

CC   C/2 Compiler.

CL   C/2 Compile and Link.

CLINK   C/2 Linker.

CV   CodeView debugging facility.

LIB   Library management program.

EXEMOD EXE file header modifier program.

MAKE   Make utility.

3. You are then prompted for a description, such as "This is the C/2 Compiler". This is optional, and will appear next to the name of the application on the user's menu.

4. The DOS Command Line is asked for next; enter any name here. This command is inserted into an internal batch file for the application You will edit this internal batch file and this name will be deleted.

5. 'Collect Parameters' would be yes.

6. 'Set Current Fileset?'; choose NO.

7. 'Additional Filesets?': choose NO.

8. Next screen ask about Program Fileset. Select C Fileset.

9. Next, you are asked for a path. Specify '\'.

10. You can specify a network drive for this application fileset if you don't the LAN Program will assign one for you. Unless you want the user to know the drive name holding the code for some reason, leave the SPECIFY DRIVE as NO.

11. Having entered all the fileset details, you are asked if you want to edit the batch file that has been created. You do.

12. Now we are thrown into the DOS editor used (usually EDLIN) and presented with the file. At this stage this will look like this;

    CALL %DRV%\anyname %1 %2 %3 .....%9

    You should delete this line and insert the lines for the corresponding BAT file. This BAT file has been constructed from the BAT files created in \APPS\BATCH with some modifications. Follow the BAT file for each C/2 application.

9.7.4 Final Selection of C/2 Users

Now that the application is ready to be used, we need to give selected users access to it.

1. Select USERS from the Action Bar, then MAINTAIN USER DETAILS

2. From the presented list of users, select ONE who you have ALREADY defined as having access to the C fileset.

3. You can check this user's fileset access at this point, or go straight into the APPLICATION SELECTOR option. Do not bother with Logon Fileset Assignments.

4. Now you are presented with the user's current application selector.

5. Select CHANGE from the Action Bar, and from the presented list of defined applications, choose the desired applications.

6. Now when this user logs on s/he will find C/2 applications as an option on his/her Application Selector menu, with immediate access to them.

7. Unfortunately you can only do this last part one user at a time, so now you need to go back to point 2 and go round again, for every user to be added. Remember you need to have PREVIOUSLY defined the users' fileset access, or the closest they will get to C/2 is staring at the menu option for it. If they choose any C/2 application, they will get only an error message telling them they do not have access to the required filesets. You need to check this as the system won't do it for you; it lets you add to a user's menu regardless of whether s/he can access what you add.

8. The final stage is common sense procedure: **Distribute the information to the users.**

```
PATH > SAVEPATH.BAT
PATH = %DRV%\BIN;%PATH%
SET INCLUDE = %DRV%\INCLUDE;%DRV%\INCLUDE\SYS;
%DRV%\BIN\CC %1
CALL SAVEPATH
DEL SAVEPATH.BAT
```

Figure 58. CC BAT file.

```
IF %1: = = : GOTO NOPARMS
PATH > SAVEPATH.BAT
PATH = %DRV%\BIN;%PATH%
SET INCLUDE = %DRV%\INCLUDE;%DRV%\INCLUDE\SYS;
SET LIB = %DRV%\LIB
%DRV%\BIN\CL %1 %2 %3 %4 %5 %6 %7 %8 %9
CALL SAVEPATH
DEL SAVEPATH.BAT
GOTO END
: NOPARMS
ECHO Parameters: < option... > filename... < -link linkoption... >
: END
```

Figure 59. CL BAT file.

```
PATH > SAVEPATH.BAT
PATH = %DRV%\BIN;%PATH%
SET LIB = %DRV%\LIB;
%DRV%\BIN\LINK %1
CALL SAVEPATH
DEL SAVEPATH.BAT
```

Figure 60. CLINK BAT file.

```
%DRV%\C\BIN\LIB
```

Figure 61. LIB BAT file.

```
IF %1: = = : GOTO NOPARMS
PATH > SAVEPATH.BAT
PATH %DRV%\BIN;%PATH%
%DRV%\BIN\CV %1 %2 %3 %4 %5 %6 %7 %8 %9
CALL SAVEPATH
DEL SAVEPATH.BAT
GOTO END
: NOPARMS
ECHO Parameters: < options > file < arguments >
ECHO Valid options: /B /C(command) /F /M /S /T /W /43
: END
```

Figure 62. CV BAT file.

```
IF %1: = = : GOTO NOPARMS
%DRV%\BIN\EXEMOD %1 %2 %3 %4 %5 %6 %7 %8 %9
GOTO END
: NOPARMS
ECHO Parameters: file < -/h > < -/stack n > < -/max n > < -/min n >
: END
```

Figure 63. EXEMOD BAT file.

```
IF %1: = = : GOTO NOPARMS
%DRV%\BIN\MAKE %1 %2 %3 %4 %5 %6 %7 %8 %9
GOTO END
: NOPARMS
ECHO Parameters: < /n > < /d > < /i > < /s > < name = value ... > file
: END
```

Figure 64. MAKE BAT file.

9.7.5 COBOL/2

The installation process for this follows the same steps as for C/2 above.

10.0 Working with Communications

In this chapter we will look at the installation and coexistence of other Communications Software with PCLP 1.3. The information here is accurate at the time of going to press; hopefully it will soon need to be updated.

We will be discussing the following IBM Communications Software programs:

- IBM PC 3270 Emulation v3.0
- IBM PC 3270 Emulation Entry Level 1.1
- IBM PC 3270 Workstation Program
- IBM Remote NETBIOS Access Facility

10.1 3270 Emulation V3.0

In this section we will look at the steps required to install 3270 Emulation v3.0 for different types of configuration, under PCLP 1.3. Details of changes you need to make in the LAN Support Program and in the NET Start parameters in terms of sessions and commands can be found in Chapters 4 and 6 respectively.

10.1.1 DFT Standalone Configuration

In this case the machine in question has a 3270 emulation card installed, and a direct coax attach to a 3x74 although it is also on the LAN. There are two ways of installing the emulator for a user of this machine:

1. If all the machines on the LAN have this standard DFT standalone connection, then the 3270 Emulation software (Entry level or above) can be installed on a program server, shared to defined users and added to their Application Selector, in the same way as any other shared application. Step by step instructions on how to do this are given in the previous chapter, "Working with Applications".

2. If there will be only certain machines in the LAN that will have this connection, the user must be aware that he can only use emulation in this way from these machines, and that his/her LAN environment is not so mobile after all.

3. If the DFT standalone machines have fixed disks, and users work always at their own machines, the other alternative is to install the program on the local disk. In this case a user would normally have to exit to DOS from their application selector and load the emulation from there. It is possible to access this local application from a user's application selector, but beware it steps outside the boundaries of PCLP 1.3, and will probably not be an officially "supported" way of going about an installation. We suggest it in cases where it is specifically desired.

4. A user can add the application to his/her Application Selector without administrator authority, and this is a simpler way of doing it. However, as an administrator you can add it to a user's application selector for them. This process is detailed in Chapter 11,

Working with Applications. Here we give a specific example of the installation process in this case, assuming that you are adding the application to your own application selector and installing it on a local disk.

a. Install the 3270 emulation software in a subdirectory called "3270em", on the C: disk of the machine(s) to be used for this connection. Install as you would for a standard DFT standalone connection.

b. Log on (from any workstation) as a user or administrator, to your domain.

c. Select: PLCP - USERADMN - MORE - Application Selector.

d. Select: Add - A Private Application

e. Enter an id for the emulation, such as "3270Em". This will appear on your application selector menu.

f. Enter a description for this option, which will also appear on your menu; this can be something a little more meaningful like "Access the Host".

g. In the requested "DOS Command Line", enter "3270v3". For PCLP 1.3, this is the command which calls up the program; for us, it is the name of the batch file we are about to create.

h. Select NO for the remaining options about parameters and specifying drives.

i. On this next screen you are presented with a list of filesets which you have access to, including of course your home fileset. You are asked to select the one containing the specified command line and code; select your home fileset.

j. Enter nothing or just a backslash (\) for the "Path to the Program", since our batch file will be in the 'root' of the fileset.

k. You do not need to specify a drive.

l. Your updated application selector menu is displayed at this stage.

m. Via your "live" application selector, exit to DOS.

n. Change to your Y: drive, assuming you are signed on to a workstation and not a server.

o. Now you need to create a batch file, to be called up when the application is selected. We have already placed its name in the DOS Command line, now to create it on our home fileset. The following syntax creates the required file:

From Y > : COPY CON 3270v3.bat C:\3270em\pscpg, f

This file will look to the local drive and path specified to load up the emulation directly (pscpg, f). For more details on pscpg parameters, please refer to the 3270 emulation V3.0 documentation. Thus, next time you select 3270Em from your application selector, it will run this batch file and load the emulation from the local disk of the machine you are on. Obviously this will only work if you are working on a suitably configured machine, and thus detracts somewhat from the PCLP 1.3 idea of complete user mobility.

10.1.2 SDLC Standalone Configuration

The set up for this is exactly the same as above, as far as working with the PCLP 1.3 is concerned. The only difference is in the initial configuration of the Emulation program itself when it is installed on the machines or the program server. In this case you would specify 'SDLC' in the required field in 'b:Communication Profile Tasks', to signify the type of connection.

10.1.3 Token-ring Standalone Configuration

This applies to workstations that are accessing the host via directly attached 3x74 or 372x, and which are configured in the Emulation Program as standalone, and thus in the controller as P.U.'s.

These can be set up similarly to those workstations with a DFT or SDLC standalone configurations: the customised emulation software is on the local disk or diskette of the workstation and accessed by a user either from DOS or from his/her tailored application selector menu. We should point out here that we were not able to test this configuration with our LAN setup.

10.1.4 Gateway Configuration

This section applies to a gateway with DFT or SDLC connection. The set up for this configuration is specifically machine bound (communications hardware required), and not related to any user id. This program is a NETBIOS and communications program which runs independently of PCLP 1.3, and is thus outside the concept of 'domains'. You can combine this gateway function with an Extended Services server. However, there may be sacrifices to be made in achieving this combination, mainly in the loss of logon ability at this machine. Here we look at the feasibility of different gateway environments, and where possible, follow the required installation steps

10.1.5 Dedicated Gateway

A dedicated Gateway is a machine on the LAN that is used solely as a 3270 gateway for network stations. The LAN Support Program will be installed to provide the NETBIOS interface, but PCLP 1.3 will not.

In this case, you simply install the software on the fixed disk of the machine following the program documentation. For use as a gateway there are a few points to remember:

- You need to edit the config.sys file, to increase the number of Sessions and Commands in the LAN Support Program. Chapter 4, 'LAN Adapter Drivers', goes into considerable detail to explain how to do this and what you are doing! Briefly, where N is the number of network stations named, you need to increase the Sessions default by N, and the Commands default by N + 1.

- When defining network station names, remember that these will relate to user ids rather than machine ids, although they must also be unique names on the LAN. One procedure could be to add 'EM' to the PCLP user id, and use that as the network station name.

10.1.6 Combined Gateway and LAN Server

We tested a 3270 Gateway combined with an Extended Services server, and it worked. The server was an RPL server without cache. The implications for memory in having RPL support and cache in real or extended memory are covered in Chapter 12, "Memory Requirements"; suffice it to say here that if you install an Extended Services server on a Token-ring to support RPL, and take all the default NET START parameters except for cache, then you should have enough memory left over to run 3270 Emulation v3.0 gateway. You will NOT have enough to log on at this machine. If your server has extended memory you can put cache in there.

On a PC Network with LSP, you may need to adjust additional NET START parameters to achieve this combination; this is because of the extra memory required by the LSP driver for PC Network. (See "LAN Adapter Drivers")

Here we go through the installation steps required to install the gateway configuration on a server which has already been set up to be an Extended Services server under PCLP 1.3.

10.1.6.1 Prerequisites

1. If you are in a Token-ring environment, and have a 3270 Communications Card installed in the gateway, do not forget to change the interrupt level on the Token-ring adapter from the default of 2 to the alternative 3. You must do this to avoid conflicts with the 3270 card, whose interrupt level is2.

2. Decide on the number and names for the network stations to be defined in the gateway.

3. If the network has been started, logon to the server in question and select DOS from the Application Selector menu. (If the network has not been started, you could simply choose not to start the LAN Program and go into DOS from there).

4. If your current drive in DOS is anything other than C:, change to C:\ and call up the config.sys for editing.

5. As with the dedicated gateway, you need to increase the Sessions and Commands in the DXMTOMOD of LAN Support Program; where N is the number of network stations to be named in the gateway, increase Sessions by N, and Commands by $(N + 1)$. The defaults are $S = 29$ and $C = 22$. This is covered in detail in Chapter xx, 'LAN Adapter Drivers'.

6. Now you need to edit the autoexec.bat.

7. To the existing NET START SRV command, add the following parameters: /SES:29 + N /CMD:22 + N + 1 , where N is as described above. The NET START SRV command sets default parameters for Sessions (SES) and Commands (CMD) equal to those in LSP, which you need to adjust in exactly the same way. 'Tailoring your NET START parameters' in Chapter xx covers this subject in detail.

8. Add to the NET START command: /CAC:0. Memory is tight in this configuration, so we do not want any cache in real memory at least. This sets the real memory cache to zero.
   NOTE: You can still have cache in extended memory, but beware that there is still an overhead for PC resident memory. This is because of 'cache.com' and the buffers that are needed. Please refer to 'Memory Considerations' for more details on this.

10.1.6.2 Installing the software

Because this is machine bound and has nothing to do with PCLP 1.3 or userids, it is installed in a subdirectory of the fixed disk of the gateway machine, exactly as it was in a PCLP 1.2 environment.

- In the C: drive of DOS, make a directory '3270v3' ('md 3270v3').

- Insert the provided 3270 Emulation v3.0 diskette in drive A:.

- Use the set up procedure provided on the program diskette to install the program files into the 3270v3 subdirectory.

10.1.6.3 Customising the emulation software

- Type 'pscpg' to enter the emulation menus for customisation.

- Select b: Communication Profile Tasks.

- Make selections as follows:(sample responses)

  - a 3   (Gateway)

- b 2   (DFT)

- c 1   (Alternate Tasks,?)

- d 101 (Keyboard)

- e 2   (Kb remapping, no)

- h ....Gateway Setup

  ▲ a GWAY (Name of Gateway)

  ▲ b 8   (Number of Sessions)

  ▲ List Network Station names

  ▲ i   (Number of Display Sessions)

10.1.6.4 *Loading the emulation*

In the boot up process of the machine, PCLP 1.3 must always be loaded BEFORE 3270 Emulation v3.0, so that the adapter is opened with the sessions and commands needed by the emulation software. You need to load emulation AFTER the NET START command, and after the Extended Services programs are loaded.

The following steps assume that this server has been configured as a domain controller.

After the NET START command in the autoexec.bat of the machine, you will see the XSDC.BAT. This batch file calls another batch file, called XSDC1.BAT, which loads all the Extended Services start up programs for a domain controller/server, ending with the presentation of the logon screen. You need to load the emulation within this batch file.

(NOTE: If the machine is just a server, these batch files are called XSAS.BAT and XSAS1.BAT respectively.) To do this, proceed as follows:

- Change directory to C:\PCLP13XS\NET1_30

- List the files in this directory to locate the XSDC1.BAT.

- This file is read only; you need to change this to edit it. At the command line, enter

ATTRIB -r XSDC1.BAT

- Now call up this file with your PC editor, eg. EDLIN.

- We want to load the 3270 Emulation after the Extended Services programs have been run, but before the logon screen is presented. Look in the region of Line 84, for a blank line followed by a 'LOGON' section, which completes the batch file.

- It is here (approx line 84) that we will load the emulation program, with 'pscpg'. In the following example the software resides in C:\3270v3 on this server machine, and we want to load pscpg with the 'f' parameter, to start the gateway immediately and bypass 'Configuration Tasks'. From the command line, enter:

C:\3270v3\pscpg C:\3270v3 ,f

This calls up pscpg from the path specified, then looks in that path as well as the root, for programs called up by pscpg. This is why you need to specify the path twice. (Alternatively, you could have put a suitable PATH statement in the autoexec.bat).

- Having edited this file, reset it to read-only. To do this, enter:

ATTRIB +r XSDC1.BAT

- Type EXIT to return to the Application Selector; log off and re-boot the system.

During the booting process you should see the Extended Services Initialisation screens as normal, followed by the 3270 Emulation v3.0 welcome screen. The gateway becomes active immediately (in theory). You do not have an alternate tasks option here; we did not specify it in the pscpg parameters because there is not enough memory for it. Neither is there enough memory to logon. However, a machine that is acting as a LAN Resource Server, an RPL server, a 3270 Gateway and a Domain Controller as well, should really be left to get on with its duties and not used for personal tasks at all.

Memory requirements and considerations for this type of configuration are covered in Chapter 12, "Memory Requirements".

10.1.7 Combined Gateway, Network Station and PCLP Workstation

Outside the world of PCLP 1.3 it is possible to have a gateway and network station on one machine. The limitation is that a user would in this case be accessing the host straight from DOS, not through the PCLP Application Selector
Although you can define this and there will be just enough memory for a user to log on, the issue here is really one of security. There is nothing to stop a user closing down the emulation on his/her machine in order to free more memory for applications; with the result that the gateway is disabled and all other users lose access to the host. If possible this combination is best avoided.

10.1.8 3270 Emulation Network Station Configuration

Network stations are defined in the gateway as NETBIOS names. We can give each user his/her own version of the emulation software, configured with a valid NETBIOS name relating to his/her user id, and install this version in the user's home fileset as a private application. This will allow the user to logon from any workstation, call up his/her emulation software, and thus use the gateway.

Note that the connection between gateways and network stations is made through NETBIOS, and has nothing to do with the PCLP 1.3 program or the idea of domains. Therefore there is no such thing as a 'cross-domain' gateway. A gateway simply serves all 'network station' names that are defined to it, regardless of where they are located on the LAN.

In the following process we will install one network station configuration of 3270 Emulation to provide host access to a sample user. This falls into four parts:

1. Assumptions

2. Installing the Emulation Software

3. Customising the Software

4. Defining the Application

10.1.8.1 Assumptions

Before you start following these steps, please assume the following:

- The gateway has been installed and is ready for use.

- It has defined the network station name of 'ANGUSem' as a display session, which we will use for our sample user, userid ANGUS.

- The network has already been started.

NOTE:

- Private applications are intended to be installed by the user for him/herself. If you will be installing your own emulation, that is fine. If you are the LAN Administrator and want to install it for a user, the simplest approach is simply to sign on with their user id and procee from there. Shared applications are designed to be installed by you for them; private applications are not. In this case, let us assume you will work from the userid ANGUS.

10.1.8.2 Installing the Emulation Software

1. From any workstation on the LAN, log on to the home domain of ANGUS, with that userid.

2. From the Application Selector menu, select DOS.

3. Change drive to the ANGUS homefileset, which will most likely be the Y: drive (where LASTDRIVE = Z in the config.sys).

4. From here make an application subdirectory for 3270 Emulation. eg. 3270v3.0

5. Make this new directory current.

6. Copy all files from your 3270 Emulation V3.0 diskette into the subdirectory you have just created.

7. NOTE: The 3270 program documentation instructs you to use SETUP to install these files. You do not need to use this procedure, for two reasons:

   - It creates a PSC.bat batch file which will not be used.

   - It prompts you for a display type, and creates an appropriate MODE command; in the PCLP 1.3 environment, ANGUS may not always be using the same type of display.

10.1.8.3 Customising the Software

- From the current DOS command line, type 'pscpg'. This takes us into the entry screen for 3270 Emulation v3.0

- Choose b: Communication Profile Tasks.

- From this screen, select 'a 2: Network Station', and as you require for the remaining options:

  - a 2   (Network Station)

  - b ?   (Type of Connection)

  - c ?   (Alternate tasks, yes or no)

  - d ?   (Keyboard)

  - p for next menu...

- On the next screen you will choose whether you want File Transfer, API, host print. It is also here that you enter the 'Network Station Name' for the user. For this userid ANGUS, specify a network station name ANGUSem, corresponding to how the gateway has the name defined already. Remember that network station names must be unique on the LAN, and thus cannot be the same as PCLP user ids.

10.1.8.4 Defining the Application

Having customised the software for ANGUS, you need to define it as an application on the application selector.To do this, follow these steps:

- From the current application selector, select PCLP - USERADM - More - 'Application Selector' - Add - 'Private Application'.

- Enter the application id, which will appear on the user's application selector; eg.'3270Em'.

- Enter a description of the application, appropriate to its position on the user's application selector.

- You are prompted for the DOS command line which will be used to load the program at the user's request.The system will look in the defined application subdirectory for this command. Here, you could just enter 'pscpg'.

- Collect Parameters?: select NO for this. It is not required.

- Set Current Fileset?: select NO for this too.

- Additional Filesets?: select NO.

- From the presented list of filesets, select the ANGUS home fileset, which contains the emulation code.

- Enter the path TO the program (pscpg) within the fileset; eg. '\3270v3'.

- Specify Drive?: select NO for this. You do not need to assign a specific drive for the user's home fileset . Usually it will be assigned as Y: anyway, as mentioned earlier.

- The updated application selector is now displayed, complete with the newly added entry for 3270 Emulation. When ANGUS next logs on, he simply has to select this choice from his application selector in order to load emulation and use the gateway.

10.1.8.5 Points to Note

- 3270 Emulation v3.0 runs independently from PCLP 1.3. As a user therefore, before you log off from the PCLP program you must end your emulation session (ALT + F8). This will free the PC resident memory taken up by the emulation (approx 193k). Beware that if if you do not do this, you may find you don't have enough memory to log back on!

- If you have alternate tasks, and have the application selector menu loaded in your alternate session, you will have trouble ending the emulation. It will tell you that first you must end the application running in your alternate session. This is because the application selector is now running UNDER the emulation. In order to get out of this, switch to your application selector, exit to DOS, then return to emulation to end it. Your application selector will then reappear.

10.2   3270 Emulation Entry Level 1.1

To install this you would follow the steps detailed in the example for a DFT Standalone Configuration of 3270 Emulation v3.0.

Note: Entry level emulation only uses 15K of PC resident memory.

10.3 3270 Workstation Program 1.1

The set up for this would be the same as for the Token-ring configuration for 3270 Emulation v3.0.

At this time (May 1988) the Workstation Program 1.1 is not supported under PCLP 1.3.

10.4 Remote NETBIOS Access Facility

Version 1.0 of RNAF is not supported under PCLP 1.3. However, Remote NETBIOS Access Facility Version 2 will be, and will also reach general availability (in the US at least) in August 1988. Unfortunately we were unable to test this version with PCLP 1.3.

It may be worth noting that the European version of Remote NETBIOS has some differences to the one marketed in the US.

11.0 Migration

11.1 Migration from PCLP V1.2

Before you migrate from LAN 1.20 to LAN 1.30, there will be some planning to do. Each migration is different, but we hope that this chapter will give you some ideas on how *you* can do it. We will also show examples of AUTOEXEC.BAT and CONFIG.SYS files that you will see in LAN 1.30 environment.

11.1.1 Requirements

Here are some points to remember for using PCLP 1.30.

1. For using the installation utility, your machine must have a fixed disk.

2. PCLP 1.30 has only been tested for DOS 3.3 and above.

3. A minimum of FILES = 20 is required in CONFIG.SYS.

4. Finally remember to installed the appropriated LAN Adapter AND Cable.

11.1.2 Domains

The first thing you have to do is to decide how to split up your LAN environment into Domains. A Domain can be a logical workgroup, e.g. your account department, or a physical area. Your LAN can be one Domain only if you choose.

11.1.3 Servers

When you have decided how many Domains you are going to have and where, the next step will be to find out how many servers and what kind of servers you want in each Domain. You must decide which of the servers in the Domain is to be the Domain Controller. These servers may be fileservers, printerservers, and/or servers to support RIPL. A server does not technically need to be dedicated, but it is STRONGLY recommended. Remember that a user cannot log on to a server, only to a work station.

11.1.4 Base Services

Remember that you can still use Base Services to share resources from a PCLP V1.3 Server to PCLP V1.2 Work stations. This means that you would still issue NET SHARE, NET USE etc in the AUTOEXEC.BAT. You do not require the old PCLP V1.2 code on the server to do this; this function is provided by BASE SERVICES which is also included when you install EXTENDED SERVICES. Be aware of the reduced security if BASE SERVICES and External resources are used.

11.1.5 Planning

Today you know how many machines are attached to your LAN. Now you have to find out how many USERS there are going to be, and how many userids each user should have, and in which Domain. For each user, you have to determine their logon environment (printers and application), and what access the are going to have.

11.1.6 How to start

How to migrate is the next question. If you have a large LAN system today, you cannot migrate from PCLP 1.20 to PCLP 1.30 overnight. Follow these steps to get started:

1. Choose a pilot Domain to start with.

2. Rename your AUTOEXEC.BAT. You can edit the new file to include the old AUTOEXEC.BAT commands you desire - this is especially true for PATH statements.

3. Be aware of the 3MB disk storage requirement.

We will show you later on some examples of AUTOEXEC.BAT and CONFIG.SYS files.

11.1.7 Suggested order of setup

This suggested order of setup follows a specify order. For more details see -- Heading id 'pclpins' unknown --

1. Install the machines and the LAN hardware (you will properly have this already).

2. Install PCLP 1.3 software on Domain Controllers and Servers

    *   Create a document of the specified machine IDs.

3. Install applications/Datasets on Servers

4. Start all Servers in the LAN

    *   Now log on as LAN Administrator to the Domain Controller and define the server machines of the Domain. This should be done for all of the Domains.

Now the details of every Domain can be defined. For doing this you must logon at every Domain, and the servers must be active.

*   On every Domain Controller:

    *   Define server machines to Domain Controllers (here you are going to use the documented machine ids).

    *   Define User ids

    *   Define Filesets

    *   Define Printers

    *   Define Application

    *   Define Users in details.

For documentation you should print for each domain the Domain Definition File. This provides an overview of all definitions of a Domain.

11.1.8 Examples of AUTOEXEC.BAT and CONFIG.SYS

As mentioned above we will show you some examples of Autoexec.bat and Config.sys files:

11.1.9 Before Installation of LAN 1.30.

```
AUTOEXEC.BAT:
        PATH C:\;C:DOS;LAN1_20;
        KEYB US 437 C:\KEYBOARD.SYS
        ECHO OFF
        CLS
        DATE
        TIME
        VER

CONFIG.SYS
        FILES=20
        COUNTRY=001, 437, C:\DOS\COUNTRY.SYS
        DECIVE=\DXMA0MOD.SYS 001
        DECIVE=\DXMC0MOD.SYS
        DECIVE=\DXMT0MOD.SYS
```

Figure 65. An example of Autoexec.bat and config.sys before installation of PCLP 1.30

11.1.10 After Installation of LAN 1.30.

```
                        DOMAIN CONTROLLER

AUTOEXEC.BAT:
        PATH=C:\PCLP13BS;C:\PCLP13XS\DOS;C:\PCLP13XS\NET1_30
        KEYB US 437 C:\DOS\KEYBOARD.SYS
        ECHO OFF
        CLS
        DATE
        TIME
        VER
        @ECHO OFF
        YNPROMPT Y N 32 Start PC LAN Program 1.30 (Y/N)?
        IF ERRORLEVEL 1 GOTO NOPCLP
        FASTOPEN C:=100
        NET START SRV TEST /XS
        IF ERRORLEVEL 1 GO NOPCLP
        XSDC.BAT  (Domain Controller initialization)
: NOPCLP

CONFIG.SYS:
        FILES=100
        COUNTRY=001, 437, C:\DOS\COUNTRY.SYS
        DEVICE=\DXMA0MOD.SYS 001
        DEVICE=\DXMC0MOD.SYS
        DEVICE=\DXMT0MOD.SYS O=N ST=10 S=25 C=22 ES=2 EST=2
        SHELL=C:\COMMAND.COM /E:2000 /P
        BUFFERS=20
        LASTDRIVE=Z
        FCBS=16,8
```

Figure 66.   An example of Autoexec.bat and config.sys on a Domain Controller

```
                        SERVER EXTENDED SERVICES

AUTOEXEC.BAT:
        PATH=C:\PCLP13BS;C:\PCLP13XS\DOS;C:\PCLP13XS\NET1_30
        KEYB US 437 C:\DOS\KEYBOARD.SYS
        ECHO OFF
        CLS
        DATE
        TIME
        VER
        @ECHO OFF
        YNPROMPT Y N 32 Start PC LAN Program 1.30 (Y/N)?
        IF ERRORLEVEL 1 GOTO NOPCLP
        FASTOPEN C:=100
        NET START SRV TEST /XS
        IF ERRORLEVEL 1 GO NOPCLP
        XSAS.BAT  DOM01   (Additional server initialization)
: NOPCLP

CONFIG.SYS:
        FILES=100
        COUNTRY=001, 437, C:\DOS\COUNTRY.SYS
        DEVICE=\DXMA0MOD.SYS 001
        DEVICE=\DXMC0MOD.SYS
        DEVICE=\DXMT0MOD.SYS O=N ST=10 S=25 C=22 ES=2 EST=2
        SHELL=C:\COMMAND.COM /E:2000 /P
        BUFFERS=20
        LASTDRIVE=Z
        FCBS=16,8
```

Figure 67. An example of Autoexec.bat and config.sys on a Extended Services Server.

```
                        SERVER BASE SERVICES

AUTOEXEC.BAT:
        PATH=C:\PCLP13BS;C:\PCLP13XS\DOS
        KEYB US 437 C:\DOS\KEYBOARD.SYS
        ECHO OFF
        CLS
        DATE
        TIME
        VER
        @ECHO OFF
        YNPROMPT Y N 32 Start PC LAN Program 1.30 (Y/N)?
        IF ERRORLEVEL 1 GOTO NOPCLP
        FASTOPEN C:=100
        NET START SRV TEST
        IF ERRORLEVEL 1 GO NOPCLP
: NOPCLP

CONFIG.SYS:
        FILES=100
        COUNTRY=001, 437, C:\DOS\COUNTRY.SYS
        DEVICE=\DXMA0MOD.SYS 001
        DEVICE=\DXMCOMOD.SYS
        DEVICE=\DXMT0MOD.SYS
        BUFFERS=20
        LASTDRIVE=Z
        FCBS=16,8

Figure 68.   An example of Autoexec.bat and config.sys on a Base Services Server.
```

```
                    WORK STATION EXTENDED SERVICES

AUTOEXEC.BAT:
        PATH=C:\PCLP13XS\NET1_30;C:\DOS
        KEYB US 437 C:\DOS\KEYBOARD.SYS
        ECHO OFF
        CLS
        DATE
        TIME
        VER
        @ECHO OFF
        YNPROMPT Y N 32 Start PC LAN Program 1.30 (Y/N)?
        IF ERRORLEVEL 1 GOTO NOPCLP
        NET START RCV TEST /XS
        IF ERRORLEVEL 1 GO NOPCLP
        XSDW.BAT DOM01
: NOPCLP

CONFIG.SYS:
        FILES=20
        COUNTRY=001, 437, C:\DOS\COUNTRY.SYS
        DEVICE=\DXMA0MOD.SYS 001
        DEVICE=\DXMC0MOD.SYS
        DEVICE=\DXMT0MOD.SYS O=N S=9
        SHELL=C:\COMMAMD.COM /E:2000 /P
        BUFFERS=20
        LASTDRIVE=Z
        FCBS=16,8
```

Figure 69. An example of Autoexec.bat and config.sys on a Extended Services Receiver.

```
                      WORK STATION REDIRECTOR

AUTOEXEC.BAT:
        PATH=C:\PCLP13BS;C:\DOS
        KEYB US 437 C:\DOS\KEYBOARD.SYS
        ECHO OFF
        CLS
        DATE
        TIME
        VER
        @ECHO OFF
        YNPROMPT Y N 32 Start PC LAN Program 1.30 (Y/N)?
        IF ERRORLEVEL 1 GOTO NOPCLP
        NET START RDR TEST
        IF ERRORLEVEL 1 GO NOPCLP
: NOPCLP

CONFIG.SYS:
        FILES=20
        COUNTRY=001, 437, C:\DOS\COUNTRY.SYS
        DEVICE=\DXMA0MOD.SYS 001
        DEVICE=\DXMC0MOD.SYS
        DEVICE=\DXMT0MOD.SYS
        LASTDRIVE=Z
        FCBS=16,8
```

Figure 70. An example of Autoexec.bat and config.sys on a Workstation Redirector.

```
                          WORK STATION RECEIVER

AUTOEXEC.BAT:
        PATH=C:\PCLP13BS;C:\DOS
        KEYB US 437 C:\DOS\KEYBOARD.SYS
        ECHO OFF
        CLS
        DATE
        TIME
        VER
        @ECHO OFF
        YNPROMPT Y N 32 Start PC LAN Program 1.30 (Y/N)?
        IF ERRORLEVEL 1 GOTO NOPCLP
        NET START RCV TEST
        IF ERRORLEVEL 1 GO NOPCLP
: NOPCLP

CONFIG.SYS:
        FILES=20
        COUNTRY=001, 437, C:\DOS\COUNTRY.SYS
        DEVICE=\DXMAOMOD.SYS 001
        DEVICE=\DXMCOMOD.SYS
        DEVICE=\DXMTOMOD.SYS
        LASTDRIVE=Z
        FCBS=16,8
```

Figure 71.   An example of Autoexec.bat and config.sys on a Workstation Receiver.

```
                          WORK STATION MESSENGER

AUTOEXEC.BAT:
        PATH=C:\PCLP13BS;C:\DOS
        KEYB US 437 C:\DOS\KEYBOARD.SYS
        ECHO OFF
        CLS
        DATE
        TIME
        VER
        @ECHO OFF
        YNPROMPT Y N 32 Start PC LAN Program 1.30 (Y/N)?
        IF ERRORLEVEL 1 GOTO NOPCLP
        NET START MSG TEST
        IF ERRORLEVEL 1 GO NOPCLP
: NOPCLP

CONFIG.SYS:
        FILES=20
        COUNTRY=001, 437, C:\DOS\COUNTRY.SYS
        DEVICE=\DXMAOMOD.SYS 001
        DEVICE=\DXMCOMOD.SYS
        DEVICE=\DXMTOMOD.SYS
        LASTDRIVE=Z
        FCBS=16,8
```

Figure 72.   An example of Autoexec.bat and config.sys on a Workstation Messenger.

11.2   Migration To OS/2

LAN Support for OS/2 comes included with OS/2 Extended Edition V1.1 (There is no equivalent of PCLP for OS/2 Standard Edition). In this environment, workstations will be configured as LAN Workstations, using the resources of a Server. The SERVER function is provided by either OS/2 LAN Server Version 1.0 program or by PCLP 1.3 Servers which will be compatible. For further information, order "PC/DOS to OS/2 LAN Migration", Document Number GG24 - 3263.

12.0 PCLP Memory Requirements.

The memory configuration for PCLP 1.3 stations are described below. The memory requirement for each segment is for reference purposes only and is approximately equal to the real memory utilization using the default parameters set by the installation utility. These figures will change if parameters other than the defaults are specified.

The Logon procedure and loading of the Application Selector require 240KB of memory to be available after installation of the PCLP program. The Administration Services software requires 270KB. If the machine at which an administrator is logged on has less than 270KB free, some of the Administrator functions may not be available. If this is the case, you will be told by a warning message at logon time.

DOS	70 (Include BUFFERS, FILES, etc.)				
LAN	Token Ring	PC Network	OLD PC Network	PC Net II or /A	OLD PC Network
LAN DRIVERS	DXMA0MOD DXMC0MOD DXMT0MOD	DXMA0MOD DXMG0MOD DXMT0MOD	DXMA0MOD DXMG2MOD DXMT0MOD	Protocol Driver	ROM NETBIOS
Memory	40	64(1)	73(2)	64	0

OPTIONAL DOS EXTENSION		
	KEYB	6
	NLSFUNC	3
	GRAFTABL	2
	FASTOPEN C:=100	6
	GRAPHICS	3
	DISPLAY.SYS driver	15
	PRINTER.SYS driver	11

	Base Services Configurations						Extended Services Configurations		
PCLP 1.3 Options	RDR	RCV	MSG	MSG /NSI	SRV	SRV /NSI	RDR /XS	RCV /XS	SRV /XS
Memory	47	66	155	106	224	175	49	68	247

	Optional Base Services Server Module	CACHE	Optional Extended Services Server Modules	CACHE
				98(3)
		121(3)		RIPL
				(4)

Figure 73. **PCLP memory requirements table:** All the memory sizes are in KB (1024 bytes). NOTES:

(1)   For servers, because a 16KB work area is defined. Only 56KB is needed for non-server workstations because a default 8KB work area is used in this case.

(2)   For servers, because a 16KB work area is defined. Only 65KB is needed for non-server workstations because a default 8KB work area is used in this case.

(3)   If you define cache in extended memory, DOS memory is required for the cache program and working area. The cache program takes 9KB. 1KB of work area is required for each 64KB cache in extended memory. For example, a 384KB extended memory cache requires 15KB. If you define cache in DOS memory, the cache program takes 9KB plus the cache size.

(4)   The memory requirements here depend on Adapter type, size of LSP drivers and availability of extended memory.

- For original PC Network adapter the RIPL program needs 15 KB.

- For 802.2 based networks (all the other adapters) the RIPL program needs:

  - 23KB plus the size of LSP device drivers for the specific adapter size, if no extended memory is available.

  - 15KB if enough extended memory is available. The corresponding LSP drivers plus RIPL workstation definitions (8 KB minimum) are loaded in extended memory.

LSP Driver	Size
DXMA0MOD	3KB
DXMC0MOD	14KB
DXMC1MOD	22KB
DXMG0MOD	27KB
DXMG1MOD	28KB
DXMT0MOD	27KB

Figure 74. LSP 1.02 Device Drivers Size.

NETWORK TYPE	SERVER WITHOUT EXTENDED MEMORY	SERVER WITH EXTENDED MEMORY	
MEMORY TYPE	REAL(640KB)	REAL	EXTENDED
Token-Ring	89 KB	15 KB	74 KB
DXMA0MOD DXMC0MOD DXMC1MOD DXMT0MOD			
PC Network II, /A or Baseband	108 KB	15 KB	93 KB
DXMA0MOD DXMG0MOD DXMG1MOD DXMT0MOD			
PC Network	15 KB	15 KB	——

Figure 75. RIPL Server Program memory requirements.: The figures include program size
(15 KB), RIPL workstations definitions(8 KB minimum) and the corresponding
LSP drivers. When extended memory is available, only the program is loaded
in base memory, the RIPL workstation definitions and the LSP drivers will be
loaded in extended memory.

The RIPL 802.2 Server program (DLCSERV) loads all the LSP LAN Drivers related with
the adapter type. You can specify that only the LSP driver DXMC0MOD
(DXMG0MOD for PC Network LANs) would be loaded, by editing the
\PCLP13XS\LISTS\RPL.MAP file. You would change in the first line the word
DXMC?MOD(DXMG?MOD) by DXMC0MOD(DXMG0MOD). This reduce the
memory requirements for the RIPL program in 22KB(28KB).

12.1 Memory Requirements Examples.

Follow some examples of different configurations.

```
PC/AT PCLP BASE SERVICES SERVER,
640 KB+512 KB EXTENDED MEMORY
PC NETWORK ADAPTER, NO LSP INSTALLED
512KB EXTENDED MEMORY CACHE
NO RESIDENT MENUS (/NSI)

DOS                         70 KB

LAN DEVICE DRIVERS           0 KB

ADDITIONAL DOS COMMANDS

  KEYB                       6 KB
  FASTOPEN C:=100            6 KB

PCLP                       175 KB

CACHE                       17 KB

TOTAL                      274 KB

AVAILABLE                  366 KB
```

Figure 76. PC Network Base Services Server memory requirement example.

```
PS/2 60 EXTENDED SERVICES SERVER,
1MB MEMORY (640 KB+ 384 KB)
PC NETWORK ADAPTER/A, LSP INSTALLED
284KB EXTENDED MEMORY CACHE
100KB RIPL EXTENDED MEMORY LSP CODE
RIPL SERVER

DOS                           70 KB

LAN DEVICE DRIVERS            64 KB

ADDITIONAL DOS COMMANDS

  KEYB                         6 KB
  FASTOPEN C:=100              6 KB

PCLP                         247 KB

CACHE                         14 KB

RIPL SERVER                   15 KB

TOTAL                        422 KB

AVAILABLE                    218 KB
```

Figure 77. PC Network/A Extended Services Server memory requirement example.: The logon screen will not appear.

```
PS/2 60 EXTENDED SERVICES SERVER,
1MB MEMORY (640 KB+ 384 KB)
PC NETWORK ADAPTER/A, LSP INSTALLED
384KB EXTENDED MEMORY CACHE
RIPL SERVER

DOS                           70 KB

LAN DEVICE DRIVERS            64 KB

ADDITIONAL DOS COMMANDS

  KEYB                         6 KB
  FASTOPEN C:=100              6 KB

PCLP                         247 KB

CACHE                         15 KB

RIPL SERVER                   93 KB

TOTAL                        501 KB

AVAILABLE                    139 KB
```

Figure 78. PC Network/A Extended Services Server memory requirement example.: The Logon screen will not appear.

```
PS/2 60 EXTENDED SERVICES SERVER,
1MB MEMORY (640 KB+ 384 KB)
TOKEN-RING ADAPTER/A, LSP INSTALLED
300KB EXTENDED MEMORY CACHE
84KB RIPL EXTENDED MEMORY LSP CODE
RIPL SERVER
```

DOS	70 KB
LAN DEVICE DRIVERS	40 KB
ADDITIONAL DOS COMMANDS	
KEYB	6 KB
FASTOPEN C:=100	6 KB
PCLP	247 KB
CACHE	14 KB
RIPL SERVER	15 KB
TOTAL	398 KB
AVAILABLE	242 KB

Figure 79. Token-Ring Extended Services Server memory requirement example.:   The logon screen appears with a warning message: not enough memory for Administration Services.

```
PS/2 25 EXTENDED SERVICES RECEIVER,
640KB MEMORY
TOKEN-RING ADAPTER, LSP INSTALLED
```

DOS	70 KB
LAN DEVICE DRIVERS	40 KB
ADDITIONAL DOS COMMANDS	
KEYB	6 KB
PCLP	68 KB
TOTAL	184 KB
AVAILABLE	456 KB

Figure 80. Token-Ring Extended Services Receiver memory requirement example.

```
┌─────────────────────────────────────────────┐
│ PS/2 25 EXTENDED SERVICES RECEIVER,          │
│ 640KB MEMORY                                 │
│ PC NETWORK ADAPTER II, LSP INSTALLED         │
├─────────────────────────────────────────────┤
│ DOS                            70 KB         │
│                                              │
│ LAN DEVICE DRIVERS             56 KB         │
│                                              │
│ ADDITIONAL DOS COMMANDS                      │
│                                              │
│   KEYB                          6 KB         │
│                                              │
│ PCLP                           68 KB         │
│                                              │
│ TOTAL                         200 KB         │
├─────────────────────────────────────────────┤
│ AVAILABLE                     440 KB         │
└─────────────────────────────────────────────┘
```

Figure 81. Token-Ring Extended Services Receiver memory requirement example.

As you can see some Extended Services Server configurations don't have enough memory for loading the logon program. In these cases, if you need to have the logon screen you would reduce the memory requirements of some modules. You can reduce the number (/REQ) and size (/RQB) of server buffers in order to provide up to 40 KB memory but this could impact the server performance.

Appendix A. PCLP 1.3 Workshop Practicals: Exercise 1, LSP 1.02

The objective of this exercise is to familiarise you with the installation and use of the LAN SUPPORT PROGRAM. How the adapter is formatted and when it is opened will be investigated, as will the connection between LSP, NETBIOS and NET START.

At this point the system is formatted and running DOS. There is a PATH to both DOS and UTIL which will be used during the exercise; these utilities are available from PC TOOLS.

Determine the type of Token Ring adapter on your computer.

Then, specify your adapter RAM size = _____ (which will be used for calculations).

Answer: 8KB = 8192 bytes
Answer: 16KB = 16384 bytes

A.1.1   Part A

C > *TYPE CONFIG.SYS*

C > *TYPE AUTOEXEC.BAT*

C > : *DIR*

This is a base system with no additional driver etc. loaded.

C > *A:*

Insert LSP diskette in drive a:

A > *DXMAID*

This will install the LSP device drivers.

Answer the installation questions as they appear:

Copy will be used in this computer	*YES*
Will 3270 WSP be used?	*NO*
Will programs that need NETBIOS be used?	*YES*
To which drive should the drivers be copied?	*C*
Is this the configuration you want?	*YES*

If additional information is required on the options, refer to **DXMINFO**

**********END PART A**********

A.1.2   Part B

C > *EDLIN CONFIG.SYS*

There are **NO** parameters on the NETBIOS line **DXMT0MOD.SYS**. This will mean **OLD PARM**s will be used. The adapter will not be opened at **IPL** time but by an application program.

To LIST in EDLIN type L and enter, to MODIFY a line type **LINE #** and **ENTER**. You can then repeat with curser keys or type over the line.

Adjust **DXMT0MOD.SYS** to **DXMT0MOD.SYS S = 10**

The entry of one parameter will cause all defaults to be taken as well, ie the S = 10 will cause O = Y to be picked up and the adapter will be opened at system initialisation.

RE-IPL.   When requested to do this use a warm restart.

You will receive the following message :

DXMT0 001 Please wait opening adapter 0

This message informs you that the adapter has been opened and initialised with the parameters provided, and for any parameter not specified, the default will have been used.

C > *SYSMAP*

The memory consumed by CONFIG

Example:

CONFIG	50240
DOS	5376

C > *TOKSTAT*

The - Maximum allowable	SAPS	01
The - Maximum allowable	LINK STATIONS	06
The - Number of available	LINK STATIONS	00

The data collected here will be used later for comparison.

QUESTION:

Why do we have one SAP?
What is the purpose of this SAP?

Answer: NETBIOS

***********END PART B***********

A.1.3   Part C

C > *EDLIN CONFIG.SYS*

Adjust **DXMT0MOD.SYS S = 10** to **DXMT0MOD.SYS S = 60 C = 20**

RE-IPL

C > *SYSMAP*

Example:

CONFIG	53232
DOS	5376

Additional memory requirements for sessions and commands. If you do a TOKSTAT now however, there should be no change to the layout.

***********END PART C**********

A.1.4 Part D:

> C > *EDLIN CONFIG.SYS*

Adjust **DXMT0MOD.SYS S = 60 C = 20** to **DXMT0MOD.SYS S = 60 C = 20 ST = 10 ES = 2 EST = 1**

RE-IPL

> C > *SYSMAP*

Example:

CONFIG	53392
DOS	5376

An increase in PC memory utilisation. The parameters changed will affect memory only very slightly ie table address etc, unlike the command and session parameters.

> C > *TOKSTAT* Example

Example:

The - Maximum allowable	SAPS	3
The - Maximum allowable	LINK STATIONS	11
The - Number of available	LINK STATIONS	1

Correlate the changes in the **CONFIG.SYS** to the changes on the adapter and consider the implication on a network of these changes.

***********END PART D**********

A.1.5 Part E

QUESTION TIME:
Please refer to technical material.

1. What effect do you think increasing the number of SAPS or LINK STATIONS has on the available space for Transmit and Receive buffers, and the frame size on the network?.
    Answer: Will tend to decrease transmit and receive buffers.

2. Using the parameters specified in CONFIG.SYS, determine the number and size of the transmit and receive buffers for an 8KB Token Ring adapter; for a 16KB Token Ring adapter? (Hint; see pages 17 and 7 of DXMINFO.)

8KB	Station B		16KB	Station A
1588	1588	bytes	1588	1588
64x3	192	SAPS	64x3	192
144x11	1584	link st	144x11	1584
1048x1	1048	xmit buff	2044x2	4088
192x19	3648	rcv buff	280x31	8680
8192-8060 =	132	not used	16384-16132 = 252	

3. What effect would changing the sessions or commands parameter have on the Transmit or receive buffer size?
Answer: None.

4. What effect quantified would increasing the SAPS by 10 have on space available for the receive buffers?
Answer: 10 x 64 = 640 bytes less

5. What effect would increasing the link stations parameter by 20 have? Explain.
Answer: 20 x 144 = 2880 bytes less

6. For those of you who understand LSP, is it possible to specify explicitly the number of receive buffers from LSP or PCLP? If so, from where?
Answer: No

What is the default number of receive buffers assigned to the adapter if a number is not specified?
Answer: 8

7. Assume there is a session being established between your PC "A" (16KB), having the parameters specified on DXMT0MOD.SYS and another PC "B" (8KB), in the network. What will the frame size be when sending data from "A" to "B"; from "B" to "A"?
Answer: From A to B = 1824 and from B to A = 1048

If station "B" had a transmit buffer of 512 bytes, what would be the frame size from "B" to "A"; from "A" to "B"?
Answer: From B to A = 512 and from A to B = 2040

8. What are the NETBIOS defaults on DXMT0MOD.SYS for stations, sessions, and commands?
Answer: Stations = 6, Sessions = 6, Commands = 12.

*********END PART E*********

A.1.6   Part F

C > *EDLIN CONFIG.SYS*

Adjust **DXMT0MOD.SYS** to **DXMT0MOD.SYS ST = 90 ES = 2 EST = 1**

QUESTION:

What effect does this have and what do you expect to happen?
Answer: Error - not enough space.

Explain the meaning and effect of each of the following:
- ST = station
- ES = extra SAPS
- EST = extra stations
- DS = DHB transmit buffersize
- DN = DHB transmit buffernumber
- R   = receive buffersize

RE-IPL

You will receive error message:

DXMT0 31E Requested resources exceed capabilities on adapter 0
Error in loading press F1 to continue

**********END PART F***********

Appendix B. Exercise 2: PCLP Installation

The purpose of this exercise is to use the PCLP 1.3 utility and install LAN PGM 1.3

The following diskettes are required for this exercise:

        - DOS   2 Diskettes
        - PCLP 1.3   6 Diskettes
        - LSP 1.02   1 Diskette

NOTE:
You must be on a Domain Controller. To use Administrative Functions concurrently with other teams. **RE-IPL**

1. Make sure you have a valid DATE and TIME.

2. Make sure you have at least 5 MB of disk space for PCLP 1.3 (3.5 MB), DW4(x.xMB), 3270EMUL V3(x.xMB), miscellaneous (rest)

        A > C:
        C > EDLIN CONFIG.SYS

Remove all the parameters currently in **DXMT0MOD.SYS**.
Perform a DIR to determine the path to the DOS directory and your UTILITY directory.

Insert the first PCLP diskette in drive A:

        C > A:

        A > INSTALL

        Select   EXTENDED SERVICES
        Select   SERVER
        DOS path   C: (Do not enter the drive)
        Server machine ID   DOMxx
        DOMAIN ID   DOMxx

When asked for SERVER MACHINE ID enter DOMxx where xx is your team number.Define this machine as the Domain controller. Example: DOM0A, DOM0B, DOM0C.

When defining a server, matching the server id specified with the Domain id will make this machine the Domain Controller.

Follow the instructions on the screen....

CONFIG.SYS
SHELL = C:\COMMAND.COM /E:2000 /P
FILES = 100
BUFFERS = 20
LASTDRIVE = Z

AUTOEXEC.BAT
PATH = C:\PCLP13BS;C:\PCLP13XS\DOS;C:\PCLP13XS\NET1_30;C:\UTIL
NET START SRV DOM0C /XS

LSP will be called for and a number of parameters will be placed on the NETBIOS line (DXMT0MOD.SYS in CONFIG.SYS); the reason for this will become clear later. The drivers will be copied to the Image subdirectory for RIPL stations.

You will be presented with change screens. Make **NO** changes to CONFIG.SYS. You may add your PATH to the utility directory for the PATH statement in the AUTOEXEC.BAT file. Adjust NET START by adding /RDR:64 after /XS

Return to DOS and inspect your system files.

This would complete a normal Server Installation, and the machine would be ready to be used. You should inspect the directory structure and ensure you understand the changes from the previous version.

C > *TYPE CONFIG.SYS*

The added parameters to the NETBIOS driver and that OPEN = N. This will cause the parameters to be loaded into memory ready to be used when the adapter is opened by PCLP.

C > *EDLIN AUTOEXEC.BAT*

Inspect this file to see what has been added. Make sure FASTOPEN precedes YNPROMPT.

NOTE: To move a line(s) specify f,l,pm where:
        f = 1st line to move
        l = last line to move
        p = move all lines preceding this line
        m = move command

RE-IPL

You will get error message NET074 Cannot Start; Network Adapter resources exceeded, when the PCLP 1.3 is started

QUESTION:

Why does this happen?
Answer: Sessions and/or commands have been exceeded.

C > *EDLIN AUTOEXEC.BAT*

Adjust **NET START SRV DOMxx /XS /RDR:64** to **/XS /RDR:15 /REQ:3**
NOTE: The default for /REQ is 6

C > *EDLIN CONFIG.SYS*

Adjust **DXMT0MOD.SYS** to **DXMT0MOD.SYS O = N ES = 2 EST = 2 ST = 10 S = 39 C = 24**

QUESTION:

What do you expect to happen?
Answer: Should get an error. RDR = 15 st = 10

RE-IPL

QUESTION:

Why do you not get an error?
HINT: Did you do any calculations for sessions and commands?

QUESTION:

Would you get an error when RDR = 64?

        C > EDLIN CONFIG.SYS

Adjust **DXMT0MOD.SYS** to **DXMT0MOD.SYS O = N ES = 2 EST = 2 ST = 10 S = 29 C = 22**

        C > EDLIN AUTOEXEC.BAT

Adjust **NET START SRV DOMxx /XS /RDR:15 /REQ:3** to **NET START SRV DOMxx /XS**

IPL

When prompted answer :
        START PC LAN PROGRM   *YES*
        START THE NETWORK   *YES*

This completes the installation exercise. In exercise 3 we will continue with use of PCLP functions.

If you get messages about storage, please read the beginning of the next exercise for corrective action.

Appendix C. Exercise 3.PCLP Administrator Tasks

In this exercise we will be setting up a user, machine, printer, filesets and installing an application on the application selector. The exercise may appear rigid with little scope for testing additional options; this has been done to allow the explanation of a complete application flow and user definition. Here we will only be covering a representative section of PCLP 1.3, but what we do cover should allow you to continue testing on return to your home location.

In practice an administrator need not log on directly to a server to accomplish the same tasks.
The following circumvention is for a workshop environment only.

Please NOTE: At this time we were working with preliminary PCLP 1.3 drivers. When a server (a Domain Controller is also a server) is defined with RIPL and you don't have extended memory in this machine, once you logoff and shutdown the server you won't be able to log back on unless you decrease resident storage. The procedure that eventually displays the logon screen requires about 230KB RAM. So, if this PCLP 1.3 driver issues an error message of insufficient memory do:

- Edit C:\AUTOEXEC.BAT

  1. Remove FASTOPEN

  2. Change NET START by adding /CAC:0 /RQB:4K /REQ:2

- Edit CONFIG.SYS

  1. Decrease FILES = 100 to FILES = 25

  2. Decrease BUFFERS = 20 to BUFFERS = 15

RE-IPL

This will enable you to continue . Ignore the message you now get warning you about limited administrative functions.

C.1   User Definition.

Since you have just installed your Domain Controller, there is only one valid userid, ADMIN. Thus each team, in sequence, will have to quickly define a new userid, ADMINxx, with the same privileges as ADMIN, except pick a password, also ADMINxx, for this new userid.

> **USER ID:**   ADMINxx xx is your team number 0A,0B,...
> **USER PASSWORD** ADMINxx

Turn your machine on and start the network

Do you want to start the network (Y/N)   *Y*

When presented with the PCLP Extended Services Start Up screen:

        Select   START THE NETWORK

The system will start automatically if you do not make a selection within 30 seconds.

When presented with the Extended Services USER LOGON screen ENTER

        USER ID: ADMIN

If you require additional information on any aspect of extended Services there is a contextual help facility that will aid you. To invoke the aid, place the cursor on the option you want explained and press F1. In addition (if you have time) look over the On-line tutorial.

When presented with the PCLP Extended Services Application Selector;

        Select   PCLP

This will lead you into the PCLP Functions Menu.

From the PCLP XS Functions screen

        Select   ADMINSRV

The ADMINSRV option is used during the definition and installation phase of Users, Machines, Printers, Filesets, and Applications. Feel free to explore any of the other options if you have time.

From the Action Bar

        Select   **MANAGE**

You can either use the cursor movement keys or the first letter of the action to position your cursor, then press ENTER to select the action.

Once you have selected an action, this option will be highlighted in the action bar; eg. when the System Management Services pop-up is displayed, the MANAGE action will be highlighted.

When the pop-up is displayed press **ENTER**

From the action bar

        Select   **USERS**

This allows us to work on defining a new user outline; the complete details will be entered later since they require the filesets to be present.

        Select   NEW USER DETAILS

On the NEW USER DETAILS screen enter the new users id

        USER ID   ADMINxx   (replace xx with your team number)

You can either create a user description from scratch or model the new user on an existing user.

Select   MODEL

From the MODEL USER screen

Select   ADMIN

From the NEW USER DETAILS

Select   MODIFY   YES

From the action bar (and next screen after hitting enter)

Select   CHANGE
Select   CHANGE USER DETAILS

On this screen edit USER name description (eg. "Created new administrator with password"), and select password YES, specifying the same name as ADMINxx on the Password Details screen.

Hit the ENTER or ESC keys and move action bar as required to back out to the Application Selector panel where you select LOGOFF. This will give the other team members a chance to logon with ADMIN while you logon with ADMINxx.

Follow the same procedure to create a userid of USERxx with some slight changes in specifications. This procedure is concluded:

Select   PCLP
Select   ADMINSRV
Select   MANAGE (action bar)
Select   USERS (action bar)
Select   NEW USER DETAILS (pop-up)
Userid   USERxx
·Select   NEW

You will be asked which server the users 'Home Fileset' is to be on. In the exercise it will be created on the machine you are working on, however there is no reason in practice for the fileset to be on the machine where the definition is being performed. If another Server is specified, however, it must be connected to the network so the Fileset can be created. If it is not connected an error message will be issued.

SERVER ID   DOMxx

When the next screen is displayed, complete as follows: (To move between fields on this screen use the TAB key.)

USER NAME   Normal User with home fileset on DOMxx
PRIVILEGE   "Normal"
PASSWORD   USERxx

Normal privilege is for a workstation user.
Administration privilege is given if ADMINSRV functions are required
The PASSWORD pop-up enter the new user password; it will not be displayed.

Select on the ·NEW USER DETAILS screen **MODIFY DETAILS** = **NO**

We have completed creating a new user in Extended Services. This user can now logon to the network and utilise his home fileset only.

C.2   Machine Definition

In this section we will define machines to the Domain Controller. Only servers and RIPL workstations are defined in this way in the Domain Controller. A server machine belongs to a Domain Controller, while an RPL workstation is assigned to a program server with RPL support. Other workstations are not defined as machines here, thus a user can sign on to any domain to which he/she is defined, from any workstation on the LAN.

Server Definition (3A)

In the following task we will define a machine as a server belonging to the Domain Controller DOMxx, and set it up to support RIPL workstations.

Select PCLP - ADMINSRV - MANAGE.
At the Action Bar, select MACHINES.

Select   New Machine Details

On the NEW MACHINE DETAILS screen enter

MACHINE ID	SERVERxx
MACHINE USE	SERVER
DESCRIPTION	SERVERxx on DOMxx.
SUPPORT RIPL	YES

**********END OF 3A**********

RPL Server Definition for Domain Controller DOMxx (3B)

Return to the action bar to select MACHINES.

Select	MAINTAIN MACHINES DETAILS
Select	DOMxx
Select	CHANGE
Select	CHANGE MACHINE DETAILS

On MACHINE DETAILS screen enter:

DESCRIPTION	Domain Controller with RIPL Support
Support RIPL	YES

**********END OF 3B**********

Turn off then on the machine (RE-BOOT)

RPL Workstation Definition (3C)

Return to the Action Bar to select MACHINES.

We will now define a workstation which will be Remote Program Loaded from an RPL server in the domain.

You only use this option to define RPL workstations. Boot-up LAN diskettes for regular diskette workstations can be created through the IMAGES option, while fixed disk machines are defined independently by running the Installation Aid locally.

On the NEW MACHINE DETAILS screen complete with:

MACHINE ID	WKSTxx
MACHINE USE	WORKSTATION
DESCRIPTION	RPL Workstation from SERVER DOMxx
LAN ADAPTER #	10005A10B063 (EXAMPLE ONLY)
EXP.MEMORY Y/N	NO (YES if there is a XMA adapter in the workstation).

When prompted for which server should be used for RIPL select

RIPL SERVER	DOMxx

If you specified SERVERxx as the RIPL server you would get an error, because the server is not yet connected to the network. This error occurs because PCLP 1.3 attempts to write the IMAGE file to the relevant server.

Select	RIPL IMAGE
Select	STD3_720 (or whatever diskette the PS or PC would normally require).

If you receive an insufficient memory error at this point, PCLP will not be able to create the diskette image or add the workstation to the MACHINE Selection panel. Try selecting another image name like STD5_360 to see if you can get by this temporary storage problem (remember we have logged on to a server and received a previous memory restriction). If there still is insufficient memory go back to the ACTION line and go to IMAGES.

Once you created the image file for the work station it becomes the primary RIPL image. When the work station IPLs, this primary image will be received. If you define additional RIPL images, the user will be able to list all the images in \PCLP13XS\IMAGES by hitting the ESC from the work station's User Logon Panel (see ESC = ALTERNATE SYSTEM IMAGE bottom line). Selecting another image will re-IPL the work station. You may create other images by going to IMAGES on the action line.

Since some teams may be IPLing the same work station, one server per workstation can be online during the IPL process. Please take turns.

Automatically included in the image are:

- IBMDOS.COM
- IBMBIO.COM
- COMMAND.COM

Files included from the STD3_720.DEF are:

• PCLP required files

- VDISK drivers

- AUTOEXEC.BAT

- CONFIG.SYS

This ends the tasks needed to create a boot up image for an RPL workstation.

NOTE: The LSP drivers, DXM..., are actually located in the PCLP13XS\IMAGES directory and *not* in the image file. Thus only one LSP copy is needed for all RIPL images, saving much disk space.

C.3 Creation of a Bootable Diskette

We will now create a diskette image that will be placed on a diskette for a normal diskette workstation. The PCLP 1.3 programs will be used from the server and will not reside on diskette; this must be considered when estimating system load.
Return to the action bar (ESC,ESC) and select **IMAGE**

Select   USE EXISTING DEFINITION

Select from the list a diskette image you want for the workstation.
This should match the diskette drive it has installed.

From the action bar select MAKE

Select   DISKETTE IMAGE
                        CREATION

MACHINE ID   DSKTxx

The PROGRAM SERVER DOMxx

The server specified will be the program server for the RIPL workstation and must always be available when the workstation is on.

Insert a **formatted system diskette** in drive "A" and press ENTER

A diskette image will be created on the diskette; this can then be used to boot the workstation directly on to the LAN. Try this on an available work station.

C.4 Printer Definition

In this task we will define a new printer in the domain.

Return to the Action Bar (END, ENTER, ESC) and select PRINTERS

Select   NEW PRINTER DETAILS

When presented with the NEW PRINTERS DETAILS screen , enter as follows:

PRINTER ID   DOMxxPRT (EXAMPLE ONLY)
DESCRIPTION   Printer on DOMxx
PRINTER TYPE   INTERNAL

"Internal" is a resource owned by the Domain; ie. the printer is physically attached to a server that belongs to this Domain Controller. "External" is resource not owned by the Domain Controller; ie. it is owned by another Domain Controller or a Base Services Server.

When presented with the SELECT SERVER for PRINTER screen complete with:

SERVER PRNT. IS ATTACHED TO	DOMxx
DOS DEVICE	LPT1
FORMS CONTROL	NO

The selection of automatic will cause the last 64 bytes of the data stream to be interrogated to see if a forms control statement has been issued. If no such statement is detected, a network forms advance will be issued; however, if there is one, the network will not issue another.

Go to PRINTERS on action bar and select UPDATE SHARED PRINTER LIST.

Select   DOMxx

On action bar:

Select   CHANGE (Change printer shared list)
Select PRINTER ID DOMxxPRT

Now you are able to share this printer in your Domain. You need to have a user access this printer, rather than the locally attached printer on the user work station. There are two ways for a user to assign a printer; at user logon time to use a default and during the current session to override the default (reverts back to the default at logoff time).

IPL from a workstation with the diskette previous created, and sign on as USERxx

Select either logon printer assignment or override logon printer assignment below.

C.4.1.1 *To set logon printer assignment.*

From the application selector enter PCLP - USERADMN. On the action bar select MORE - PRINTER ASSIGNMENTS. On the action bar select CHANGE - ASSIGN PRINTER. From the list (LPT1-3) select LPT1 as your printer device. You are now shown a list of printer(s). Select the printer name to which your printed output will be redirected - in this case, DOMxxPRT.

Return to your logon screen and logon with your userid, again.

C.4.1.2 *To override logon printer assignment.*

From the Application Selector enter PCLP - USERSRV. On the action bar select QUEUE and ASSIGN PRINTER (to the shared printer DOMxxPRT)

Select   DEVICE LPT1
Select   PRINTER DOMxxPRT

You will now see that your LPT1 printer is assigned to DOMxxPRT on Server ID DOMxx.

C.4.1.3 Continue here after completing one of the above assignments.

To test assignment to be able to print a file enter PRINTF from the PCLP function. If there are no printable files to print leave PRINTF, change your current drive, then re-enter PRINTF.

QUESTION: What are the two ways to change your current drive?
Answer: Go to DOS, Go to FILEMAN - MORE - CHANGE

QUESTION: How do you change the PAGE SEPARATOR on the printer to none?
Answer: Go to USERSERV - ADMIN - PAGES - Disable Separator Printing.

Return to the Application Selector and LOGOFF.

Check your current USERxx printer assignment from the workstation by logging back on.

QUESTION:What is your current printer assignment?
Answer: USERSERV - LPT1: DOMxxPRT on Server id: DOMxx

This concludes the printer definition.

C.5   Fileset Definition

This is discussed in detail in next section, Installation Application

Appendix D. Installing Applications

D.1 Working with DisplayWrite 4

1. Installation of DW4 software

2. Definition of Filesets

3. Application description

4. Final selection of users

D.1.1 Installation of DW4 software

The purpose of the following exercise is to familiarise you with the steps required to install DW4 under Extended Services, on a LAN. This is one method which works, although at no time does it use the PCLP Application Installation Utility. You will be working within one domain only, as applications need to be installed within the domain in which they will be used. First you will physically install the program code on the designated server, then create the required PCLP 1.3 definitions on the domain controller.

1. Decide which server in the domain is going to share the program code.(In this case, this will also be your domain controller).

2. At this machine, logon to the domain (DOMxx) as ADMINxx, and exit to DOS from your Application Selector.

3. Equipped with the DW4 manual and diskettes, insert diskette 1 in drive A:. This will take you through the installation of the diskettes.

4. Type A: INSTALL

    a. DW4 automatically creates directory DW4 DRIVE ?

    b. Specify drive and directory (or only drive) to store document?

    c. Mouse installed?

    d. Printer type attached to LPT1 (IBM 5152-2 Graphic)

    e. Printer type attached to LPT2 (IBM 5201-2 Quietwriter)

    f. Printer type attached to LPT3 (IBM 3812 pageprinter)

    g. Copy 5 diskettes. PATH already exists to install program complete.
       PATH already exists to MODE.COM
       INSTALL PROGRAM COMPLETE

5. Having run the install procedure, you may delete the batch file created by it, since it will not be used in this LAN environment. This batch file is called dw4.bat and can be found in the directory into which the program has been loaded (\DW4).

6. Edit the config.sys file (use edlin for this here). The DW4 install procedure may insert FILES = 16 at the end of config.sys, which overrides the FILES = 100 (minimum) that you should have already. Delete the FILES = 16.

7. From DOS type EXIT to return to the Extended Services Menu.

This completes the physical installation stage; now to define it within the LAN program. Before we continue it might be worth pointing out that we did use another simpler method of "installing" DW4 which also worked; that of simply copying the files into the subdirectory. Of course this may not be sufficient with other programs.

D.1.2 Definition of Filesets

1. Ensure that the prospective DW4 users have been defined to the domain, in terms of each user's id, password and privilege level. In this case, that will be USERxx.

2. Now we need to decide on the filesets to be used for running DW4. For this installation, let us say that we want to share three separate directories on different network drives. We will give them fileset ids as follows:

   - One subdirectory contains the program code; remember we loaded this into c:\dw4. We can call the fileset whatever we like, it is simply an identifier; DW4PROG is a logical choice!
   - We want another directory to hold the work in progress for a group of users; we can call this DW4WRK.
   - We also need a directory for a library of shell documents to be shared out; let us give this a fileset id of DW4SHELL.   •

1. From the application selector, select PCLP; ADMINSRV; MANAGE.

2. Select FILESETS from the Action Bar, then NEW FILESET DETAILS

3. Starting with DW4PROG, fill in the requested details.

FILESET ID	DW4PROG
DESCRIPTION	This fileset contains program, DW4PG
FILESET TYPE	INTERNAL
SERVER	DOMxx

4. ENTER:

DRIVE FILESET EXISTS ON:	C
PATH TO THE FILESET:	\DW4
SHARE MODE:	STATIC

   PATH starts from the drive.

   Choose between "static" or" dynamic" share mode; static will share the program at server load time, while dynamic share is only activated on request from the Application Selector. (Static sharing is more suitable for frequently used applications, since it assigns drives for the filesets immediately, and these remain available while the server is on. Dynamic sharing makes more sense for applications that are seldom used, since the drives will only be assigned for the filesets when a user requests the application containing them).

5. Select USERxx,(from the presented list) to give him/her access to the fileset which contains the program, DW4PG.

6. Give USERxx a level of access to this fileset; the options are simply R for read only or U for update, which relates to the R/W/C option in PCLP 1.2. For the program code, make it Read only access.

7. Repeat the above process for each of the two remaining filesets to be defined, DW4WRK and DW4SHELL.

FILESET ID:	DW4SHELL	DW4WRK
DESCRIPTION:	contains shelldoc	work in progress
FILETYPE:	Internal	Internal
SERVER:	DOMxx	DOMxx
DRIVE:	C	C
PATH:	\DW4SHELL	\DW4WRK
SHARE MODE:	STATIC	DYNAMIC
USER:	USERxx	USERxx
ACCESS:	R	U

D.1.3 Application Description

Now we have the filesets, we need to define the application itself.(It is impossible to do it in reverse order) To add DW4 to the users' application selector menu:

1. Select APPLICATIONS from the Action Bar

2. Go into New Application Details and you will be asked for the application id; enter the name you would like to appear on the user's application selector menu. (eg. DW4)

3. You are then prompted for:

DESCRIPTION: DW4 wordprocessor on DOMxx

DOS COMMAND LINE: DW4PG

This command is inserted into an internal batch file for the application. Presently you will edit this file to complete the parameters for DW4.

COLLECT PARAMETERS: NO

YES means that users have to 'enter parameters on to a blank unformatted line', every time they load the application.

SET CURRENT FILESET: YES

This is a useful facility for DW4 which equates to an option within DW4 (Create Batch Files). It allows you to specify a default drive/directory to be made current when the user goes into DW4. It will also be the default drive/directory on which the user creates and saves documents. You will choose which fileset to make current later.

ADDITIONAL FILESETS: YES

Because of DW4SHELL. Linking this fileset to the application enables users to access the shell documents in it, by simply changing their current drive within DW4.

4. Select from the list of defined filesets in the domain.

APPLICATION PROGRAM FILESET: DW4PROG

5. PATH TO DOS COMMAND: \

This is NOT the same as C:\DW4, which described the path TO the fileset. This path describes the path FROM the 'root' of the fileset (DW4PROG) to the specified DOS command (DW4PG).

SPECIFY NETWORK DRIVE: NO

You can specify a network drive for this application fileset. If you don't the LAN Program will assign one for you. Do not specify a physical drive (for example, C).

6. Fileset to be made current: DW4WRK.

   Choose from the list displayed, the fileset which identifies the drive/directory you want the user to default to for creating and saving documents.

7. PATH IN FILESET TO DIRECTORY: \

Again you need to specify the path TO the directory you want WITHIN the fileset; you can leave this blank or enter the backward slash.

SPECIFY DRIVE; YES.

8. DRIVE: W

   You then choose a letter, drive W. Of course you need to plan these fixed assignments carefully at the start to avoid conflicts, but there is a good reason for knowing your current drive in DW4; maybe as a user you load up DW4 and decide to change drive/directory. If you do not know the drive letter for your default directory, you may have a few problems trying to get back to it! If you do a directory listing before changing drives you will see the drive letter, but it is probably safer to know your drives from the beginning. It is best to start assigning drives from W down (if LASTDRIVE = Z) since a 70 mb disk may have multiple drives, or there may be V-disks if you are remote IPL'g.

9. ADDITIONAL FILESET SCREEN:

   Choose DW4SHELL from the list of fileset so users will be able to jump into the shell library.

10. ADDITIONAL FILESET DRIVE: V

A user can only move to a drive for which s/he knows the letter!DO NOT LEAVE BLANK.

11. Having entered all the fileset details, we are asked if we want to edit the batch file that has been created. We do, because so far it is incomplete.

12. You are presented with the file in EDLIN. Since you are on the server you may not have enough storage for EDLIN. ENTER:

   EDIT BATCH FILE: NO

   Return to DOS via Application Selector. CD C:\PCLP13XS\BATCH. Before you can edit, you must change the R attribute.

   ATTRIB -R DW4.BAT

   EDLIN DW4.BAT

   At this stage DW4.BAT will looks like this;

   CALL%DRV%\DW4PG %1 %2 %3 .....%9

   So far this is calling up the DW4PG program from the drive to which the housing fileset (DW4PROG) will be assigned by the system (%DRV%). The other parameters only apply if you had specified YES to Collect Parameters, which you have not.

In any installation of DW4 we need to call the program, the standard user profile, the primary program path and the display mode; in this installation we also want to call a temporary program path to save 31Kb of memory in the workstation running the application.

This is the line you need to enter:

   CALL%DRV%-DW4PG %DRV%-PROFILE.PRF, %DRV%-, Y:-,,C

The meaning and format of these parameters is detailed in the DW4 Technical Reference under Install Support. The %DRV% is replaced by the automatically assigned drive or the one you specified; do not specify one here. The only one you do set is Y:. This is always the drive for the user's home fileset,(where LASTDRIVE = Z in the config.sys on the user's workstation). Here we are using this drive for our temporary program path.

D.1.4 Final Selection of DW4 Users

Now that we have the application ready for action, we need to assign some users to have access to it.

1. Select USERS from the Action Bar, then MAINTAIN USER DETAILS

2. From the presented list of users, select USERxx (as before).

3. Select MORE on the action bar. You can check this user's fileset access at this point, or go straight into the APPLICATION SELECTOR option.

4. Now you are presented with the user's current application selector.

5. Select CHANGE from the Action Bar, and from the presented list of defined applications, choose DW4.

6. Now when USERxx logs on s/he will find DW4 as an option on his/her Application Selector menu, with immediate access to it.

7. The final stage is common sense procedure in a real installation: **record the fixed drives you have selected for the current and additional filesets and distribute the information to the users. In our case they are W and V, respectively.**

Appendix E. Exercise 4: PCLP 1.3 User Interface

The aim of this lab session is to get you used to using the PCLP 1.3 menus from a user perspective.

- Log on at a workstation on the LAN with the user id you defined in exercise 3.

- Referring to the foils from the lecture on 'User Functions', Log on as USERxx (normal user) and experiment with all available functions.

QUESTIONS:

Were you able to check your print queue?
Answer: PCLP - USERSERV - QUEUE (print queue management)_____

Can you add or delete an application from the Application Selector?
Answer: PCLP - USERADMN _ MORE - APPLICATION SELEC-TOR_____

Can you send a message to another USER ID?
Answer: LANMSG_____

Can you list your current filesets?
Answer: PCLP - FILEMAN -CHANGE - MAKE FILESET CUR-RENT_____

Can you print a file?
Answer: PCLP - PRINTF_____

Appendix F. Exercise 5. Create 3270 Emulation V3.0 Network Station

F.1 Aim: To set up a Network Station for 3270 Emulation v3.0

In the following exercise you will install 3270 Emulation v3.0 to be used by users on network stations accessing a gateway on the PCLP 1.3 LAN.

For having 3270 Emulation program network station alternate task and file transfer, you must be on a 640KB machine.

Network stations are defined in the gateway as NETBIOS names. We can give each user his/her own version of the emulation software, configured with a valid NETBIOS name relating to his/her user id, and install this version in the user's home fileset. This will allow the user to logon from any workstation, call up his/her emulation software, and thus use the gateway.

Note that the connection between gateways and network stations is made through NETBIOS, and has nothing to do with the PCLP 1.3 program or the idea of domains. Therefore there is no such thing as a 'cross-domain' gateway. A gateway simply serves all 'network station' names that are defined to it, regardless of where they are located on the LAN.

Each network station requires 2 sessions and 4 commands. This requires increasing sessions and commands in DXMT0MOD in CONFIG.SYS and the NET START statement in AUTOEXEC.BAT on each workstation.

The gateway requires 1 session and 1 command in its CONFIG.SYS and AUTOEXEC.BAT for each network station plus 1 additional command for itself.

This exercise falls naturally into five parts:

1. Assumptions

2. Install the Emulation Software

3. Customise the Software

4. Define the Application

5. Test

F.1.1 1. Assumptions

Before you start this exercise, please assume the following:

1. The gateway has been installed and is ready for use.

2. It has defined the network station name of 'USERExx' as a display session, where xx is your team number. Note that USERExx is a different id from USERxx!

3. The network has already been started, and you are sitting at the server on which USERxx's home fileset resides. The following steps require that you are working on this machine. If you were working from a different machine, you could use the PCLP Administrator Functions to install the software remotely.

F.1.2 2. Install the Emulation Software

Now let's install 3270 emulation v3.0 to allow USERxx to use the gateway to access the host, as USERExx.

1. From your machine DOMxx, logon as ADMINxx.

2. From the Application Selector menu, select DOS.

3. Because YOUR home fileset is on the C: drive of this machine, your current drive in DOS will be C:, and your current directory will be C:\pclpuser\adminxx.

4. Change your directory within pclpuser, from adminxx to userxx; you are now in this user's home fileset. ('cd \pclpuser\userxx')

5. From here make a directory called 3270v3. ('md 3270v3').

6. Change directory to 3270v3.('cd 3270v3')

7. Insert the provided 3270 Emulation v3.0 diskette, and simply copy all of its files into the 3270v3 subdirectory you have just created. ('copy a: *.*')

8. NOTE: The 3270 program documentation instructs you to use SETUP to install these files. You do not need to use this procedure, for two reasons:

   • It creates a PSC.bat batch file which we will not use.

   • It prompts you for a display type, and creates an appropriate MODE command; in our environment, USERxx may not always be using the same type of display when s/he uses emulation.

F.1.3 3. Customise the Software

Now you are going to customise this version of the software for USERxx.

• From the current \3270v3 command line, type 'pscpg'. This takes us into the entry screen for 3270 Emulation v3.0

• Choose b: Communication Profile Tasks.

• From this screen select as follows:

   ▪ a 2   (Network Station)

   ▪ b 3   (Token-ring Connection)

   ▪ c 1   (Alternate tasks, yes)

   ▪ d 101   (Keyboard)

   ▪ p for next menu...

• On the next screen;

   ▪ Leave the defaults for a and b

- c 1   (File Transfer, yes)

- d 4   (API,none)

- e USERExx (Network Station Name), where xx is your team number!

F.1.4   4. Define the Application

Sign on your Domain Controller as ADMINxx.

Having customised the software for USERxx, you need to define it as an application on their application selector.To do this, follow these steps:

- From your own application selector, select PCLP - ADMINSRV - MANAGE - APPLICATIONS - 'New Application Details'.

- Enter the application id, which will appear on the user's application selector; eg.'3270Em'.

- Enter a description of the application, appropriate to its position on the user's application selector.

- You are prompted for the DOS command line which will be used in the internally created batch file to start the application, as in the DW4 exercise. Here, type 'pscpg'. We will edit the file presently to complete the parameters required.

- Collect Parameters?: select NO for this. It is not required.

- Set Current Fileset?: select NO for this too.

- Additional Filesets?: select NO.

- From the presented list of filesets in the domain, select the one which contains the emulation program. In this case that will be the fileset USERxx, their home fileset.

- Enter the path TO the program (pscpg) within the fileset; in our case the path is '\3270v3'.

- Specify Drive?: select NO for this. You do not need to assign a specific drive for the user's homefileset. Usually it will be assigned as Y: anyway, where LASTDRIVE = Z in the workstation config.sys.

- You are asked if you want to edit the internal batch file that has been created; select YES.

- At this stage the batch file consists of the following CALL:

CALL %DRV%\3270v3\pscpg %1 %2.....%9

This call will attempt to run pscpg from the subdirectory 3270v3 in the drive which will represent the user's home fileset. It will not work like this, since pscpg needs to call other programs, which are also in the subdirectory of the fileset, not in the root. We have not told it to look in the subdirectory. We also want to use the 'f' parameter as we did for the gateway. To achieve this, adjust the entry as follows:

CALL %DRV%\3270v3\pscpg %DRV%\3270v3 ,f

The final stage is to allow USERxx to access the emulation program from his/her application selector.

- From YOUR application selector, select: PCLP - ADMINSRV - MANAGE - USERS - 'Maintain User Details'.

- From the presented list of defined userids in the domain, select USERxx.

- From the action bar, select MORE.

- From the pop down windows presented, select the last option, 'Application Selector'.

- You are presented with the user's current Application Selector. From the action bar, select CHANGE.

- From the presented list of applications that have been defined for this user, select '3270Em'. If this does not appear on the list, try a Page Up; these lists are not necessarily presented from the top!

- Displayed now is the updated Application Selector for USERxx.

This completes the installation and definition; now to see if it works.

F.1.5 5. Test

- Check with the 'teacher' that the gateway is active.

- There should be one or more machines in the lab configured as workstations on the LAN; log on to one of these as USERxx.

- From the application selector presented, select '3270Em' and wait with baited breath... some sort of host sign on screen should appear. If so, well done!

All that has to be done now in a real environment is to repeat the above process for each user requiring emulation.

QUESTIONS:

1. How do you go into alternate task from the hostscreen?
   Answer: ALT + ESC._____

2. If you are in alternate task what is displayed?
   Answer: Application Selector._____

Return to hostscreen and end 3270 emulation by hitting ALT + F8 - twice.

3. What is still running in alternate task?
   Answer: Application Selector_____

4. Enter "Z" and hit enter. What happens?
   Answer: Return to 3270 hostscreen_____

5. Why?
   Answer: Application Selector is still running_____

6. How can you successfully end 3270 Emulation?
   Answer: From ALT - TASK and Application Selector enter DOS. Now nothing is running in ALT - TASK. Hit ALT + ESC to return to hostscreen. Hit ALT + F8 twice. Now you can end 3270 emulation and automatically return to normal Application Selector.

F.1.6 Points to Note

- 3270 Emulation v3.0 runs independently from PCLP 1.3. As a user therefore, before you log off from the PCLP program you must end your emulation session (ALT + F8). This will free the PC resident memory taken up by the emulation (approx 193k). Beware that if if you do not do this, you may find you don't have enough memory to log back on!

- With the method used above for installing a private application, the application id (3270Em) has to be unique to each user. This is because all the ids are held centrally in the domain control database. Obviously this is not satisfactory for a commonly used program like 3270 Emulation v3.0!

- There is a simpler method to install a private application for a user; sign on at a workstation with their id, and proceed from there. This method is very similar to what you have done, but involves less steps. It is detailed in the PCLP 1.3 Red Guide; the reason you did not use this method here is that it requires you to log on at workstations, of which there are not enough available in the lab!

Appendix G. Exercise 6: Create 3270 Emulation V3.0 Gateway

G.1 AIM: To set up 3270 Emulation Gateway on LAN Server

G.1.1 Introduction

The set up for this configuration is specifically machine bound (3270 communications hardware required), and not related to any user id. This program is a NETBIOS and communications program which runs independently of PCLP 1.3, and is thus outside the concept of 'domains'. You can combine this gateway function with an Extended Services server. However, there are sacrifices to be made in achieving this combination, mainly in the loss of logon ability at this machine. (Cache in real memory and RPL support are impossible together in a gateway/server, but with care you can retain RPL support and have some cache in extended memory.)

In this exercise you will install 3270 Emulation v3.0 with the gateway configuration, on a machine which has already been set up to be an Extended Services server under PCLP 1.3.

G.1.2 Prerequisities

1. Decide on the number and names for the network stations to be defined in the gateway.

2. If the network has been started, logon to the server in question and select DOS from the Application Selector menu.

3. Change directory back to the root and call up the config.sys for editing.

4. To support 3270 Emulation Gateway, you need to increase the Sessions and Commands in the DXMTOMOD of LAN Support Program; where N is the number of network stations to be named in the gateway, increase Sessions by N, and Commands by $(N+1)$. The defaults are $S=29$ and $C=22$; therefore, make $S=29+N$ and $C=22+N+1$.

   For this exercise, find out how many users need to be defined in your gateway (how many other teams are there in the class?), and get the user id that each team is working with. You will use this information later on. Having found out how many network stations you will be defining (ie. the value of N), adjust Commands and Sessions in DXMT0MOD.SYS as explained above.

5. Now you need to edit the autoexec.bat.

6. To the existing NET START SRV command, add the following parameters: /SES:29 + N   /CMD:22 + N + 1 , where N is as described above. The NET START

SRV command sets default parameters for Sessions (SES) and Commands (CMD) equal to those in LSP, which you need to adjust in exactly the same way.

7.   Add to the NET START command: /CAC:0.

Memory is tight in this configuration, so there is no room for cache.
NOTE: If you put cache in extended memory (/EXM in the NET START parameter), there is still an overhead for PC resident memory. eg. EXM Cache of 384K takes 16k of resident memory.

G.1.3   Installing the software

Because this is machine bound and has nothing to do with PCLP 1.3 or userids, it is installed in a subdirectory of the fixed disk of the gateway machine, exactly as before:

- In the C: drive of DOS, make a directory '3270v3' ('md 3270v3').

- Insert the provided 3270 Emulation v3.0 diskette in drive A: . Make drive A current.

- Type SETUP and run the setup procedure to install the files in the subdirectory 3270V3.

G.1.4   Customise the emulation software

- Make C:\3270V3 current.

- Type 'pscpg' to enter the emulation menus for customisation.

- Select b: Communication Profile Tasks.

- Make selections as follows:

  - a 3   (Gateway)

  - b 2   (DFT)

  - c 2   (Alternate Tasks,No)

  - d 101   (Keyboard)

  - e 2   (Kb remapping, no)

  - h ....Gateway Setup

    - ▲ a GWAY (Name of Gateway)

    - ▲ b 8   (Number of Sessions)

    - ▲ List Network Station names

    - ▲ i   (Number of Display Sessions)

- Exit configuration and 3270 task selection

G.1.5   Loading the emulation from PCLP 1.3 Server (Domain Controller)

In the boot up process of the machine, PCLP 1.3 must always be loaded BEFORE 3270 Emulation v3.0, so that the NETBIOS open includes the sessions and commands needed by the emulation software. You need to load emulation AFTER the NET START command, and after the Extended Services programs are loaded.

After the NET START command in autoexec.bat, you will see the XSDC.BAT file. This batch file calls another batch file, called XSDC1.BAT. which loads all the Extended

Services start up programs for a domain controller/server, ending with the presentation of the logon screen. You need to load the emulation within this batch file. To do this, proceed as follows:

- Change directory to C:\PCLP13XS\NET1_30

- List the files in this directory to locate the XSDC1.BAT.

- This file is read only; you need to change this to edit it. At the command line, enter

ATTRIB -r XSDC1.BAT

- Now call up this file with EDLIN or another editor, such as PE2.

- We want to load the 3270 Emulation after the Extended Services programs have been run, but before the logon screen is presented. Look in the region of Line 84, for a blank line followed by a 'LOGON' section, which completes the batch file (look for the label starting with : NORPL).

- It is here (approx line 84) that we will load the emulation program, with 'pscpg'. In the following example the software resides in C:\3270V3 on this server machine, and we want to load pscpg with the 'f' parameter, to start the gateway immediately and bypass 'Configuration Tasks'. From the command line, enter:

C:\3270v3 pscpg C:\3270v3 ,f

(Note: you may want to surround the above with a YNPROMPT)

This calls up pscpg from the path specified, then looks in that path as well as the root, for programs called up by pscpg. This is why you need to specify the path twice. (Alternatively, you could have put a suitable APPEND statement in the autoexec.bat).

- Having edited this file, reset it to read-only. To do this, enter:

ATTRIB +r XSDC1.BAT

- Type EXIT to return to the Application Selector; log off and re-boot the system.

During the booting process you should see the Extended Services Initialisation screens as normal, followed by the 3270 Emulation v3.0 welcome screen. The gateway becomes active immediately (in theory). You do not have an alternate tasks option here; we did not specify it in the pscpg parameters because there is not enough memory for it. Neither is there enough memory to logon. However, a machine that is acting as a LAN Resource Server, an RPL server, a 3270 Gateway and a Domain Controller as well, should really be left to get on with its duties and not used for personal tasks at all.

This completes the exercise to install a 3270 Gateway.

Appendix H. Planning Worksheets

IBM PC LAN Program 1.30 Extended Services
Planning Worksheet

SERVER Part 1 of 2

Machine Name _____   Domain Controller YES/NO

Domain Name _____

RIPL Support YES/NO

RIPL Workstations Supported: Default
Machine ID   LAN Adaptor #   RIPL Image

_____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____

APPLICATION PACKAGES:
Application ID   Fileset   Path within Fileset

_____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____

FILESETS:
Fileset ID   Drive Path to Fileset from Root Dir.   Static/Dynamic

_____   ___   _____   _____
_____   ___   _____   _____
_____   ___   _____   _____
_____   ___   _____   _____
_____   ___   _____   _____
_____   ___   _____   _____

SHARED PRINTERS:
Printer ID   Device   Shared at Start

                           YES/NO
_____   _____   YES/NO
_____   _____   YES/NO
_____   _____   YES/NO
_____   _____   YES/NO
_____   _____   YES/NO
_____   _____

```
                    IBM PC LAN Program 1.30 Extended Services
                              Planning Worksheet

                            SERVER  Part 2 of 2


Machine Name        _____

Domain Name         _____


HOME FILESETS on THIS SERVER:
User ID                  User ID                  User ID

_____         _____         _____
_____         _____         _____
_____         _____         _____
_____         _____         _____
_____         _____         _____


EXTERNAL RESOURCES provided:
Name            Dr.Path

_____    ____    _____
_____    ____    _____
_____    ____    _____
_____    ____    _____


CONFIGURATION INFORMATION:

Memory          _____
Extended Memoru _____
Special Adapters _____
                _____
                _____
                _____


RESIDENT PROGRAMS and/or DEVICE DRIVERS:

_____
_____
_____
_____
_____
```

```
IBM PC LAN Program 1.30 Extended Services
                Planning Worksheet

               USER  Part 1 of 1


User Name _____     User ID _____

DOMAINS where the USER is DEFINED:
               Home Fileset       Administrator
Domain ID      Server  Status     Password

_____     _____   YES/NO     YES/NO
_____     _____   YES/NO     YES/NO
_____     _____   YES/NO     YES/NO



SHARED APPLICATIONS in APPLICATION SELECTOR:
Application ID       Description

_____          _____
_____          _____
_____          _____
_____          _____
_____          _____
_____          _____
_____          _____
_____          _____



FILESETS ASSIGNED at LOGON
Fileset         Access   Dr    Server

_____        _____    ___   _____
_____        _____    ___   _____
_____        _____    ___   _____


DYNAMIC ACCESS:
Fileset         Access   Dr    Server

_____        _____    ___   _____
_____        _____    ___   _____
_____        _____    ___   _____



PRINTERS ASSIGNED at LOGON
Printer         Device   Server

_____        _____    _____
_____        _____    _____
_____        _____    _____
```

IBM PC LAN Program 1.30 Extended Services
Planning Worksheet

SHARED APPLICATION Part 1 of 1

Application Description _____

Application ID _____ .

INSTALLED in DOMAIN at Server

_____   _____
_____   _____

APPLICATION DETAILS:

DOS Start Command   Parameters
                                     YES/NO
_____

Package   Path within
Fileset   Dr   Fileset

_____ ___   _____

Current   Path within
Fileset   Dr   Fileset

_____ ___   _____

Additional   Path within
Fileset   Dr   Fileset

_____ ___   _____
_____ ___   _____
_____ ___   _____
_____ ___   _____
_____ ___   _____

BATCH FILE for APPLICATION:

_____   _____
_____   _____
_____   _____
_____   _____
_____   _____

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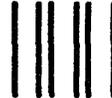
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