Apple®
MacX25 Administrator's Guide

Beta Draft

APPLE COMPUTER, INC.

Contents

Figures and Tables

About This Guide

T HIS GUIDE DESCRIBES THE MACX25 PRODUCT, AND TELLS YOU HOW TO SET UP Macintosh computers on an AppleTalk network system for X.25 communications with MacX25.

Who should read this guide

This guide is intended for network administrators who are responsible for installing and maintaining MacX25 servers on the AppleTalk network system.

How to use this guide

This guide begins with general product and installation information and then provides instructions for using each aspect of the MacX25 Admin program.

What each chapter contains

This guide contains the following eight chapters.

- Chapter 1 gives a basic overview of the MacX25 product.

- Chapter 2 contains information about setting up a Macintosh computer to run the MacX25 Server software, and about installing the necessary software on each MacX25 user's Macintosh.

- Chapter 3 tells you how to get started with MacX25 Admin.

- Chapter 4 tells you how to set up and manage MacX25 servers on the AppleTalk network.

- Chapter 5 tells you how to control user access to the MacX25 servers.

- Chapter 6 contains instructions for setting X.25 parameters.

- Chapter 7 describes how to build a Master Address Book for your MacX25 users.

- Chapter 8 discusses how to use MacX25 Admin to view activity on the MacX25 servers .

What each appendix contains

This guide provides the following appendixes.

- Appendix A contains a table that summarizes the functionality provided by the MacX25 product.

- Appendix B contains a series of tables that list the X.25 parameter settings in each parameter file that comes with the MacX25 product.

- Appendix C contains a brief description of each parameter that you can set with the MacX25 Admin program.

- Appendix D lists the messages that may appear in the MacX25 Admin Log window.

- Appendix E summarizes how MacX25 Admin shows slot conditions and MacX25 server status.

A quick reference card

For your convenience, you will find a quick reference card at the back of this guide. The card contains brief instructions for using MacX25 Admin to create and start a MacX25 Server, to set access priviledges for a MacX25 user, and to add an entry to the Master Address Book.

What you need to know

This guide assumes that you are familiar with the Macintosh® computer, with X.25 networks, and with an AppleTalk network system.

Conventions

To use this guide most effectively, you should recognize the following conventions in the text.

Boldface type

As you read, you will notice certain words and phrases in the text appear in boldface type. These are new terms and they are defined in the glossary in the back of this guide. (This feature is not implemented in this beta draft).

Special messages

The following words and symbols indicate special messages to you:

❖ *Note:* Text set off in this manner presents an interesting point of information or a consideration that you should make as you read the surrounding text.

△ **Important**   Text set off in this manner presents important information that you must consider as you read the surrounding text.   △

Check list of MacX25 Server requirements

This section briefly lists what you need to run the MacX25 Server software. See Chapter 1 for more detailed information about the requirements for MacX25 Admin.

- a Macintosh II family computer

- System 6.03 or greater

- at least 2 MB of RAM

- ADSP, Server Agent, Apple IPC, and Open Book in your System Folder

- MacX25 Folder containing MacX25 1.0, MacX25 Admin, and at least one parameter file

Before users can use the MacX25 servers, you need to use MacX25 Admin to create

- MacX25 Servers and MacX25 Users files

- a Master Address Book with at least one entry

Check list of MacX25 User requirements

This section briefly lists what you need to run the MacX25 User software. See Chapter 1 for more detailed information about the requirements for this product.

- a Mac Plus, Macintosh SE family, or Macintosh II family computer with a hard disk.

- System 6.03 or greater

- at least 1 MB of RAM

- ADSP, X.25, and Open Book in your System Folder

Before you can access MacPAD, you need
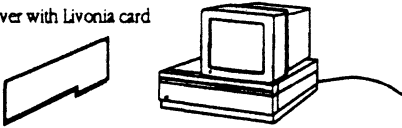
- to install the MacX25 User software on the Macintosh
- to purchase and install a terminal application that uses Apple's Communications Toolbox interface

To use the Macintosh features of MacPAD, you need to use the Chooser to create an Addresses file in your System Folder. See the MacX25 User's Guide for instructions.

What you need to do

MacX25 Admin is the administration program for MacX25 Server. You use this application to download the MacX25 Server software to each Apple Serial NuBus Card and to start X.25 operations. *Figure 2-1* graphically shows a the list of tasks that you must perform to set up a Macintosh for MacX25 Server.

- **Figure 2-1**   Setting up MacX25 servers

Server with Livonia card	
Tasks	Files created
Install the software	
Create the MacX25 servers	
Add users to the MacX25 gateway	
Tailor parameter files, if needed	
Build a master address book	

Where to look for information

Use *Table P-1* to determine where to find instructions for each administrative task that *Figure P-1* shows.

■ **Table P-1**   Where to find the instructions

Task	Where to find instructions
Installing the communications card	Apple Serial NuBus Card Installation Guide and Chapter 2 of this guide
Installing the MacX25 software	Chapter 2
Using MacX25 Admin the first time	Chapter 3
Creating a MacX25 server	Chapter 4
Adding a MacX25 user	Chapter 5
Tailoring MacX25 parameter files	Chapter 6
Building the Master Address Book	Chapter 7
Viewing MacX25 server activity	Chapter 8

Related documents

The *MacX25 Administrator's Guide* is part of a suite of documents for the MacX25 product. The other guides that relate to MacX25 include:

■ The *MacX25 User's Guide*, which contains information about installing and using the MacX25 User software

■ The *MacX25 Programmer's Guide*, which contains information about the programmatic interfaces to the MacX25 product

Because MacX25 works with other products, you may also find the following documents useful

■ The *Communications ToolBox Programmer's Guide*, which contains information for developing connection tools, terminal tools, and file transfer tools that use Apple's communications interface

The MacX25 Product

M ACX25™ IS AN APPLE PRODUCT THAT LINKS MACINTOSH® PERSONAL computers on an AppleTalk network to packet-switched data networks supporting the Consultative Committee on International Telegraphy and Telephony (CCITT) Recommendation X.25.

This chapter describes how Apple brings X.25 into its AppleTalk network system and lists the hardware and software requirements for MacX25's two major components, MacX25 Server and MacX25 User.

How MacX25 brings X.25 to the AppleTalk Network System

Your MacX25 package contains MacX25 Server and MacX25 User software.

MacX25 Server allows a Macintosh II family computer to support X.25 links into standard public or private packet-switched data networks and to extend access to the X.25 links to other Macintosh computers over AppleTalk.

MacX25 User enables Macintosh computers on the AppleTalk network to share the X.25 links that a MacX25 server provides to connect to host computers on the X.25 network. MacX25 User also provides a standard PAD interface, called MacPAD™, for end-to-end communications between the user's Macintosh and the remote host computer.

A link to the X.25 network

X.25 customers can subscribe to a variety of services from a packet-switched, wide-area data network. For limited network use, users often prefer to dial into the network. Networks charge for this service with per call and call duration rates. For more substantial use, users can save money by leasing a direct line into the network, usually for a flat monthly rate.

MacX25 Server puts X.25 communications on Apple's intelligent Serial NuBus™ Card, which can reside in a NuBus™ slot of any Macintosh II family computer. With the appropriate cabling, you can connect the card directly to an X.25 network switch. When the properly connected serial card is running the MacX25 communications software, it functions as a **MacX25 server**, providing one X.25 link that registered MacX25 users can share.

The Macintosh running MacX25 Server is a **MacX25 gateway** between an AppleTalk network system and a packet-switched data network. MacX25 Server features an administration program that runs on the MacX25 gateway and that makes it easy to create and manage MacX25 servers, to control user access to the MacX25 servers, and to simplify server use for MacX25 users.

All but one of the NuBus slots can be used by Apple Serial Cards supporting MacX25 servers. (The Video Card that supports the monitor requires one slot.) For example, a Macintosh IIcx can support one or two MacX25 servers, while a Macintosh II or IIx can support up to five MacX25 servers. *Figure 1-1* shows a MacX25 gateway with two MacX25 servers. Each MacX25 server supports one X.25 link to a packet-switched data network.

■ **Figure 1-1**   How MacX25 brings X.25 to the AppleTalk network system
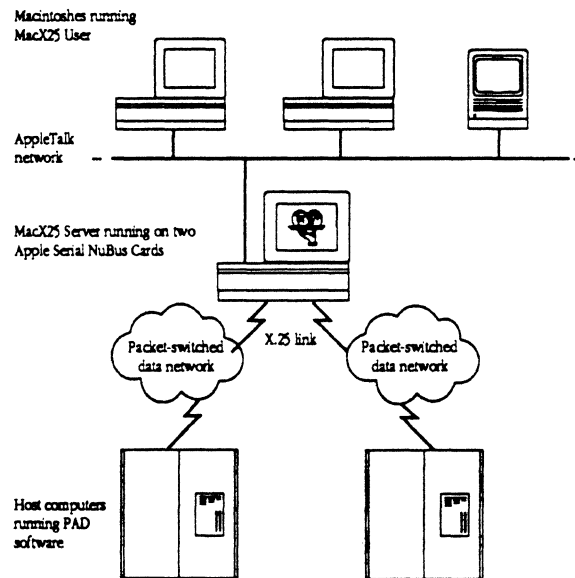
A PAD for host to Macintosh communications

A packet assembler disassembler, or PAD, is a program that accumulates characters from a user terminal or terminal application, assembles the characters into X.25 data packets, and transmits the data packets over an X.25 network connection to a Host computer. Similarly, a PAD disassembles X.25 data packets that it receives from the Host computer and displays the characters on the user's terminal.

A PAD performs other functions as well. For example, a PAD stores information about the display characteristics of a terminal, and these display characteristics can be modified according to what the host computer expects and the terminal supports. Also, a PAD can assemble and send certain X.25 control packets to establish a new X.25 connection, or to interrupt data transfer during an active connection to get status information about the connection or to perform a connection maintenance task.

MacX25 User contains a CCITT conformant PAD program, called MacPAD. *Figure 1-1* shows several Macintosh computers that have MacX25 User and that are connected to an AppleTalk network system. These Macintosh computers can share the MacX25 server's X.25 links to connect to a host computer on the packet-switched data network and to send and receive X.25 packets between the user's Macintosh and the remote host computer.

Macintosh communications in systems software

MacPAD is a connection tool that you can access from any terminal application that uses Communications Toolbox.

Communications Toolbox is Macintosh system software that supports multiple types of connections, terminals, and file transfer methods. The Macintosh system version 6.03 and later includes the Communications Toolbox as part of the System file, and provides a Communications folder with several connection tools, terminal tools, and file transfer tools.

What you should know about MacX25 Server

This section tells you what you need to run MacX25 Server, discusses some important factors to consider about communications between MacX25 Server and the X.25 network you are using, describes what is on the MacX25 Server disk, and mentions some of the files that MacX25 Admin creates when you use this application.

What you need to run MacX25 Server

This section describes what a Macintosh must contain to run MacX25 Server.

Hardware requirements

The minimum hardware required for MacX25 Server is

- a Macintosh II family computer equipped with
  - □ 1 megabyte (MB) of memory
  - □ a 20 MB hard disk
- a Serial NuBus Card for each MacX25 server that the the MacX25 gateway supports

You must use one NuBus slot in the MacX25 gateway for the Video Card that supports your monitor. You can install Serial NuBus Cards in any or all of the remaining slots.

You must purchase the Serial NuBus Card and its required cabling separately from the MacX25 product. *Chapter 2* contains MacX25-specific information that you must consider when purchasing a Serial NuBus Card for X.25 communications with the MacX25 product.

System requirements

MacX25 Server requires System 6.03 or greater. You can purchase a System 6.03 upgrade from your local Apple dealer.

Other software requirements

To use MacX25 Admin, your Macintosh must contain all of the MacX25 Server software in the appropriate locations on your hard disk. See *Chapter 2* for instructions on installing the MacX25 Server software.

Because MacX25 servers can be active only when MacX25 Admin is running, you must run MacX25 Server under MultiFinder to use other programs on the MacX25 gateway.

- ❖ You cannot run MacX25 Server on a Macintosh that is running AppleShare® or LaserShare® because these products do not run under MultiFinder.

When the Macintosh is busy processing, MacX25 users may not be able to connect to a MacX25 server. For example, while you are dragging your mouse down the MacX25 Admin menus, the Macintosh is busy and MacX25 users cannot gain access to any of the MacX25 servers that it supports. This does not affect users who already have connections through a MacX25 server.

X.25 network considerations

This section discusses X.25 network details that you must consider prior to implementing MacX25 as your X.25 connectivity product.

Functionality

MacX25 is a comprehensive X.25 product that provides the functionality that most X.25 customers require. However, there are some X.25 services that MacX25 does not support. Appendix A summarizes the X.25 functionality that MacX25 Server provides.

Network parameters

When you subscribe to X.25 services from a network vendor, you must negotiate approximately 150 variables, or parameters, for your particular situation. You must then set your X.25 parameters to match the negotiated values.

MacX25 Server includes several parameter files, each containing a complete set of X.25 parameters. You can dynamically set approximately 31 parameters from within MacX25 Admin; the other parameters are static values and you cannot change them.

In most cases, one of the supplied parameter files will fit your needs. Appendix B contains tables that show the values of each static parameter within each of the supplied parameter files. You may prefer to bring this information with you when you negotiate parameters with your network vendor.

If none of the supplied parameter files fits your needs, you should contact your Apple Technical Support representative for assistance.

Throughput issues

A MacX25 server can support up to 64 virtual circuits transferring data in 128-byte packets. With MacX25 Admin, you can dynamically set both the number of virtual circuits and the packet size. The maximum number of virtual circuits you can specify is 64. The maximum packet size is 4096 bytes. Keep in mind that the number of virtual circuits that the server can support diminishes as the packet size increases. For example, if you plan to send and receive 4K-byte packets, the server may only support up to four virtual circuits.

Memory issues

To run MacX25 Admin under MultiFinder, your Macintosh must contain at least 2 MB of RAM.

The window size and packet or frame size parameter settings that you set through MacX25 Admin affect how much Macintosh memory is required for network transmissions. If you set your X.25 parameters for large window sizes and for large packet and frame sizes, your MacX25 gateway may require additional RAM.

What the MacX25 Server disk contains

The software required to run MacX25 Server is contained on a single 800 kilobyte (KB) disk. *Figure 1-2* shows the contents of the MacX25 Server disk.

At the top level, the MacX25 Server disk contains a System Folder, a ReadMe file, and the TeachText application.

■ **Figure** 1-2   Contents of the MacX25 Server disk

MacH25 Server
| 1 item | 385K in disk | 394K available |

System Folder   TeachText   Read Me

System Folder
| 5 items | 385K in disk | 394K available |

Apple IPC   ADSP   Server Agent   Open Book   X.25 Configurations

H.25 Configurations
| 5 items | 385K in disk | 394K available |

X25 Admin   DefaultX25

DCE Telenet   DTE Telenet   Telenet Dial Out
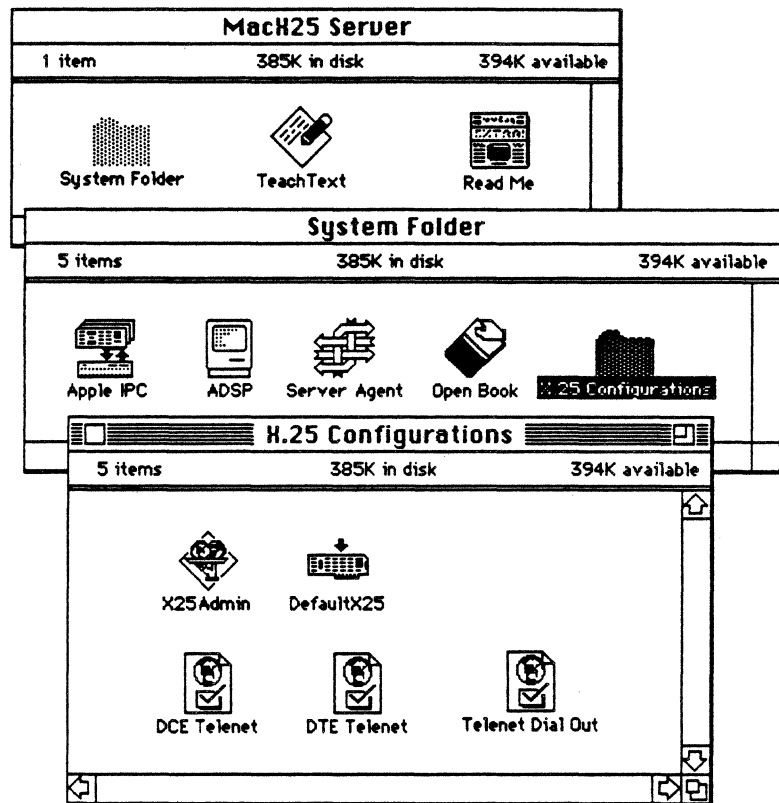
The System Folder

The System Folder does not contain a complete system. The **System Folder** contains

■ **Apple IPC**, which is a startup document (or INIT file) for InterProcess Communications (IPC). Apple IPC handles NuBus communications between the Macintosh and the Serial NuBus Card

■ **ADSP**, which implements the AppleTalk Data Stream Protocol and is used for communications between a MacX25 server and the user's Macintosh

- **Server Agent**, which is a startup document that handles communications between ADSP and Apple IPC

- **Open Book**, an application that displays information from the Master Address Book and Addresses files and that allows you to modify its contents

- **MacX25 Folder**, which contains

  □ **MacX25 Admin**, the program that you use to perform all of the administration tasks for the MacX25 gateway

  □ **MacX25 1.0**, which contains the X.25 communications software

  □ one or more parameter files that contain the parameter settings necessary to run MacX25's X.25 communications software over a specific network. For example, **Telenet Parameters** contains the appropriate parameter settings for Telenet

ReadMe and TeachText

The **ReadMe** file and its accompanying **TeachText** application provide the standard program overview information for the disk.

When you open the ReadMe file, it uses the TeachText application to display this information to you. You can scroll through the text as you read it and you can print the ReadMe file.

When you are finished, choose Quit from the File menu to return to your desktop.

Other files you create with MacX25 Admin

This section describes some programs that are not included on the MacX25 Server disk, but that MacX25 Admin creates when you use this application.

MacX25 Servers and MacX25 Users

When you use MacX25 Admin for the first time, it creates two files, MacX25 Servers and MacX25 Users. As you use the program, it stores any information you save about a MacX25 server in the MacX25 Servers file and any information you save about users in the MacX25 Users files.

Figure 1-3 shows how these two files appear in the MacX25 Folder.

■ **Figure** 1-3   The MacX25 Servers and MacX25 Users files

X.25 Servers   **X.25 Users**
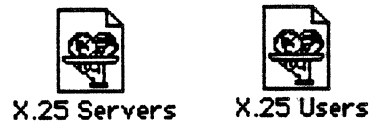
Master Address Book

The Master Address Book is a file that contains connection information that a program, like MacPAD, can use to establish or receive X.25 calls through a MacX25 server.

You can create this file by choosing MacX25 Admin's Open Master Address Book command or by launching the Open Book application.

After you put information into the Master Address Book, a MacX25 user can use the Chooser desk accessory to copy information from the Master Address Book on the MacX25 gateway to a file, called Addresses, on the user's Macintosh. The X.25 Chooser document, which is included in the MacX25 User software, provides this capability.

Figure 1-4 shows how the Master Address Book file and the Open Book application will appear in the System Folder of the MacX25 gateway.

■ **Figure** 1-4   The Open Book application and its Master Address Book file

Open Book   **Master Address Book**

Parameter files

The MacX25 Server disk provides several parameter files that you can select for individual MacX25 servers. MacX25 Admin allows you to open and modify a parameter file and to save changes to the existing parameter file or to a new parameter file. *Figure 1-5* shows examples of MacX25 parameter files.

■ **Figure 1-5**   MacX25 parameter files

DCE Telenet   DTE Telenet   Telenet Dial Out   New file

What you should know about MacX25 User

This section lists the requirements for MacX25 User, describes what is on the MacX25 User disk, and discusses the files that are created when users follow the instructions in the MacX25 User's Guide.

What MacX25 users need

This section describes what MacX25 users need to have in order to use MacPAD.

Hardware requirements

You can run MacX25 User on a Mac Plus and on the Macintosh SE and Macintosh II families of personal computers. The Macintosh should have a hard disk.

System requirements

MacX25 Server requires System 6.03 or greater. The user can purchase a System 6.03 upgrade from a local Apple dealer.

Other software requirements

To use MacPAD, the MacX25 User software and a terminal application that uses the Communications Toolbox must be available on the user's Macintosh.

The MacX25 User disk does not contain a terminal application. Users should purchase this from a local Apple dealer.

What the MacX25 User disk contains

The 800 KB MacX25 User disk contains a System Folder, the MacPAD Tool, a Setup Folder, the TeachText application, and a ReadMe file. *Figure 1-6* shows the contents of the MacX25 User disk.

■ **Figure 1-6**   Contents of the MacX25 User disk
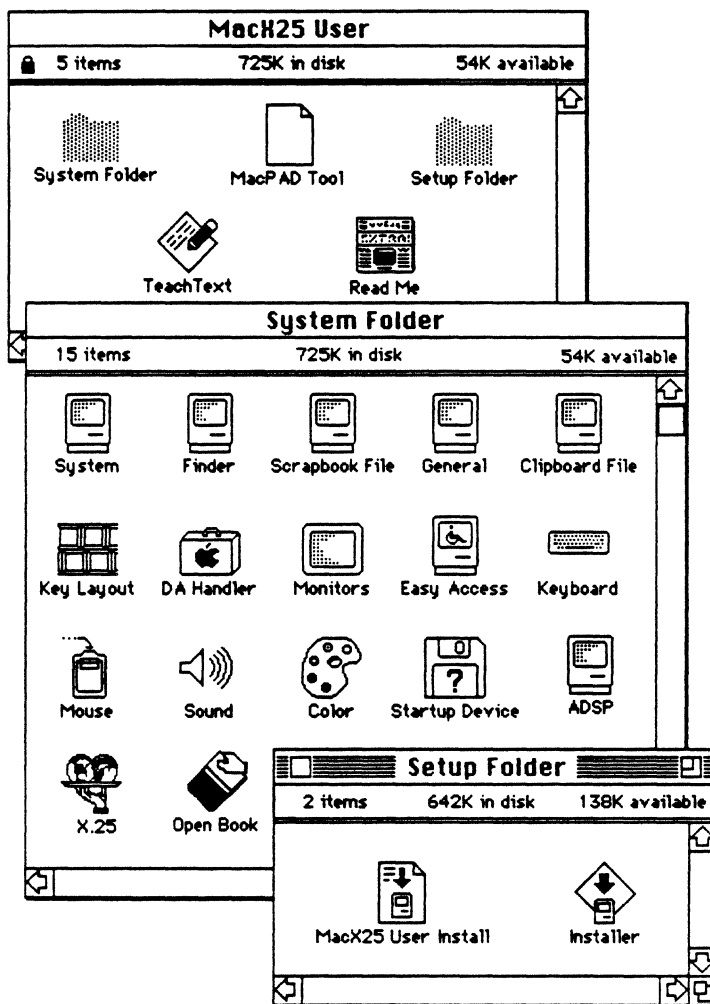
System Folder

The System Folder contains :

■ the required versions of the System file and the Finder

- the standard device files for the Control Panel, such as the General, Keyboard, Key Layout, Monitors, Mouse, Sound, Color, and Startup Device files

- standard desk accessories, such as the Scrapbook and Clipboard files

- **ADSP**, which implements the AppleTalk Data Stream Protocol

- the **X.25** Chooser document, which displays X.25 services to the user from within the Chooser desk accessory and which allows the user to copy information from the Master Address Book to the local Addresses file

- **Open Book**, the application that displays information from the user's Addresses file and that allows the user to modify its contents locally

Setup Folder

The Setup Folder contains :

- **Installer**, a program that automatically copies the necessary programs and files from the MacX25 User disk to the hard disk of the Macintosh

- **MacX25 User Install**, a file that contains information that the Installer program requires to perform its software installation tasks

You can find instructions for using the Installer program in *Chapter 2* of this guide. The MacX25 User's Guide also includes these instructions.

MacPAD Tool

The MacPAD Tool has the connection software for MacPAD connections through the Communications Toolbox

ReadMe and TeachText

The **ReadMe** file contains some basic overview information about the MacPAD product and the latest information about MacX25 User that is not covered in the *MacX25 User's Guide*. When a user opens ReadMe, the **TeachText** application displays this information to the user. The user can scroll through the text to read it and can print the file. When finished, the user chooses Quit from the File menu to return to the desktop.

Other files users create

This section describes some files that do not appear on the MacX25 User disk, but that are created by, required by, or used by its programs.

Addresses

MacPAD uses the Open Book application to display a list of host names when the user sets up a MacPAD connection.

Open Book gets its information from a file called Addresses in the user's System Folder. Open Book automatically creates this file when the user follows certain procedures described in the MacX25 User's Guide.

The Addresses file has the same icon as the Master Address Book, which Open Book also creates.

Terminal session documents

Terminal applications for the Macintosh usually allow you to save the current connection setup information into a file that the application owns. This type of file, called a terminal session document, usually appears on the desktop as a document icon with the application's icon inside it. When you double click on this type of document, you launch the program that created the document with the saved settings. This feature saves you time and makes the product easier to use.

Figure 1-7 illustrates this concept by showing the icons for the original MacTerminal application and one of its terminal session documents.

■ **Figure 1-7**   MacTerminal application and session document

MacTerminal   My session

Initial Setup

P REPARING YOUR APPLETALK NETWORK SYSTEM FOR X.25 COMMUNICATIONS with MacX25 involves several tasks. You must set up a Macintosh II family computer as a MacX25 gateway by installing Apple Serial NuBus cards in it and by copying the MacX25 Server software onto its hard disk. You must also install MacX25 User software on the Macintosh of each user.

This chapter contains MacX25-specific information for installing Apple Serial NuBus Cards, and gives detailed instructions for installing the MacX25 Server and MacX25 User software.

Installing the communications card

The MacX25 Server's X.25 software runs on an Apple Serial NuBus Card in a NuBus slot of a Macintosh computer. Depending on the model, the Macintosh has three or six NuBus slots. You must use one slot for the Video Card that supports your monitor. You can install Apple Serial NuBus Cards in any or all of the remaining slots. See the *Apple Serial NuBus Card Installation Guide* for instructions.

The Apple Serial NB card requires either a Hydra cable and a V.35 cable. Because MacX25 will work with either of these cables, you may choose the cable that best fits your needs.

Each of these cables has a connector that is marked J-62. You plug the J-62 connector into the serial card's port at the back of the Macintosh. For more detailed instructions, see the *Apple Serial NuBus Card Installation Guide*.

The Hydra cable has four DB25 connectors (or ports), which are labeled 1A, 1B, 2A, and 2B. The V.35 cable has two connectors, which are labeled 1A and 2B. MacX25 requires the 1A connector on either cable.

△ **Important** Always use the connector marked *1A* to connect to your X.25 network equipment, regardless of which cable you are using with the serial card and regardless of your line speed. You cannot use any of the other connectors on the Hydra cable or on the V.35 cable for communications with MacX25. △

Installing the MacX25 Server software

The MacX25 Server disk contains all of the MacX25 Server software. The disk does not include a complete system, and no Installer program is required or provided.

This section describes how you install the MacX25 Server software on your MacX25 gateway.

Check your system version

MacX25 Server requires version 6.03 or later of the System file and version 6.1 or later of the Finder. To make sure that these files are installed on your system:.

1. Double-click on your hard disk icon to open it.

2. Open the System Folder on your hard disk.

3. Select the Finder.

4. Choose GetInfo from the File menu to check the version of the Finder.

5. Close the Get Info window by clicking the close box in the upper-left corner.

6. Select the System file.

7. Choose GetInfo from the File menu to check the version of the System file.

8. Close the Get Info window.

If you do not have the required version of either of these files, you must upgrade your system. See your local Apple dealer for information on obtaining a System 6.03 upgrade for your Macintosh computer.

Copy the MacX25 Server files

To copy the MacX25 Server programs and files, follow these steps:

1. Insert the MacX25 Server disk into the disk drive of the Macintosh that you will use as the MacX25 gateway.

2. Open the MacX25 Server disk by double-clicking its icon.

3. Open the System Folder of the MacX25 Server disk.

4. Drag the Apple IPC, ADSP, Server Agent, and Open Book files from the System Folder of the MacX25 Server disk to the System Folder of your hard disk.

The system displays a chart that shows the progress of the copy operations.

5. Drag the MacX25 Folder from the MacX25 Server disk to the your hard disk.

You can put the MacX25 Folder anywhere on your hard disk.

The system displays a chart that shows the progress of the copy operations.

You may find it convenient to display the MacX25 Folder directly on your desktop. You can display the MacX25 Folder on your desktop by dragging its icon to your desktop after you copy it to your hard disk.

6. Restart your Macintosh.

The system ejects the MacX25 Server disk and puts the MacX25 programs into effect.

You can now begin working with MacX25 Admin by following the instructions in *Chapter 3*, or you can install the MacX25 User software on the MacX25 gateway (or on other Macintosh computers) as the next section of this chapter describes.

Installing the MacX25 User software

This section contains instructions for installing MacX25 User on a Macintosh.

Although you do not need to install MacX25 User on the MacX25 gateway to use MacX25 Admin, you may want to use MacPAD or the X.25 Chooser from the gateway to test your MacX25 servers when you first start them.

You can also follow these instructions to install MacX25 User on other Macintosh computers on the AppleTalk network.

To install MacX25 User with the Installer program:

1. **Insert the MacX25 User disk into the disk drive of the Macintosh.**

2. **Open the MacX25 User disk by double-clicking its icon.**

3. **Open the Setup Folder by double-clicking its icon.**

4. **Double-click the Installer icon to launch the Installer program.**

   A window like the one shown in *Figure 2-1* appears.

5. **Click Install.**

   The Install program copies the necessary files from the MacX25 User disk to the Macintosh hard disk and notifies you when it completes the process.

■ Figure 2-1   The Installer window

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┌──────────────────────────────────────────────────────────────┐
│ ╔══════════════════════════════════════════════════════════╗ │
│ ║ Easy Install                                             ║ │
│ ║ ┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈ ║ │
│ ║ ┆ Click on Install to place:                            ┆ ║ │
│ ║ ┆                                                        ┆ ║ │
│ ║ ┆   An update to the System for:                        ┆ ║ │
│ ║ ┆   • X.25 Access Version 0.0d0            ╭─────────╮  ┆ ║ │
│ ║ ┆   • Existing RDSP Software               │ Install │  ┆ ║ │
│ ║ ┆                                          ╰─────────╯  ┆ ║ │
│ ║ ┆ on the hard disk named                                ┆ ║ │
│ ║ ┆ ⊂⊃ Pat's II                                            ┆ ║ │
│ ║ ┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈ ║ │
│ ║                                       ╭──────────────╮     ║ │
│ ║                                       │  Eject Disk  │     ║ │
│ ║                                       ╰──────────────╯     ║ │
│ ║                                       ╭──────────────╮     ║ │
│ ║                                       │ Switch Disk  │     ║ │
│ ║                                       ╰──────────────╯     ║ │
│ ║                                       ┈┈┈┈┈┈┈┈┈┈┈┈┈┈      ║ │
│ ║                                       ╭──────────────╮     ║ │
│ ║                                       │  Custom...   │     ║ │
│ ║        ╭──────────╮  ╭───────────╮    ╰──────────────╯     ║ │
│ ║        │   Help   │  │ More Help │    ╭──────────────╮     ║ │
│ ║ 3.0a7  ╰──────────╯  ╰───────────╯    │     Quit     │     ║ │
│ ║                                       ╰──────────────╯     ║ │
│ ╚══════════════════════════════════════════════════════════╝ │
└──────────────────────────────────────────────────────────────┘
```
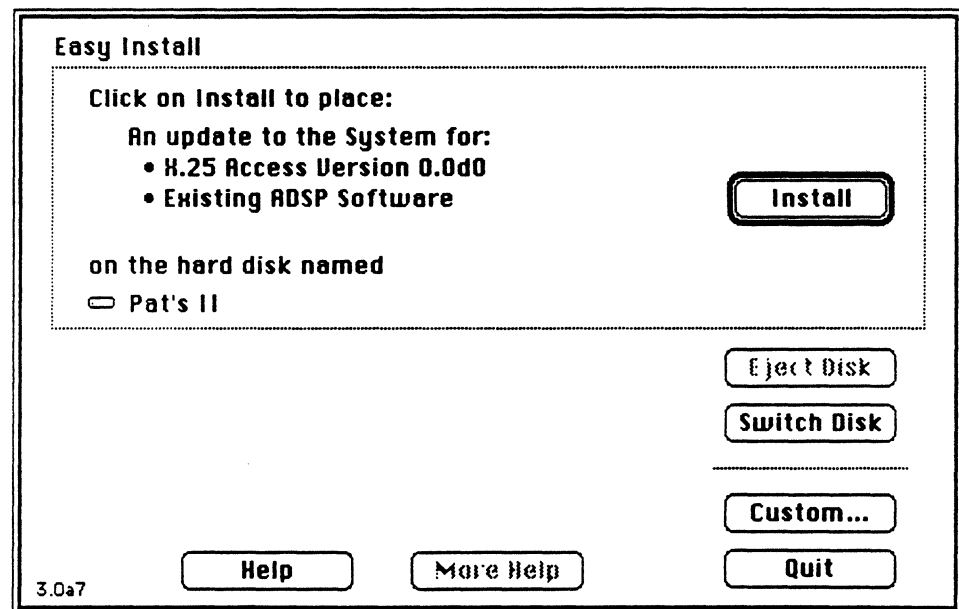
6. Click Quit to return to the Macintosh desktop.

7. Close the MacX25 User disk and eject it.

At this point, the X.25 Chooser and MacPAD programs are available on the Macintosh system. You can use these programs, however, only after you have created and started a MacX25 server on the MacX25 gateway and have set appropriate user access privileges for the server.

You access MacPAD from a terminal application that uses the Communications Toolbox. See your local Apple dealer for information on terminal applications that are compatible with MacPAD.

Getting Started with MacX25 Admin

Aғ́ᴛᴇʀ ʏᴏᴜ sᴇᴛ ᴜᴘ ᴛʜᴇ ᴍᴀᴄx25 ɢᴀᴛᴇᴡᴀʏ ᴡɪᴛʜ ᴀᴘᴘʟᴇ sᴇʀɪᴀʟ ɴᴜʙᴜs ᴄᴀʀᴅs and with the MacX25 Server software, you can begin using the MacX25 Admin application to perform the administrative tasks for the MacX25 gateway.

This chapter introduces you to MacX25 Admin and tells you how to get started with it.

23

Introducing MacX.25 Admin

You use the MacX25 Admin application to create and maintain a MacX25 gateway. The MacX25 gateway consists of the following files:

■ a MacX25 Servers file

■ a MacX25 Users file

■ one or more X.25 parameter files

■ a Master Address Book file

The first time you launch MacX25 Admin, you must enter an Admin key of your choice. When you enter this key, MacX25 Admin creates the MacX25 Servers file and stores the Admin key in it. Then, MacX25 Admin creates the MacX25 Users file and stores Guest user information in this file.

As you use the program, MacX25 Admin stores in the MacX25 Servers file any server information that you save, and stores in the MacX25 Users file any user information that you save.

The MacX25 Folder contains parameter files for several widely used X.25 public networks. With MacX25 Admin, you can assign one of these parameter files to each MacX25 server you create. You can also modify some of the settings in an existing parameter file, save the settings to a new parameter file, and then assign the new parameter file to a MacX25 server.

MacX25 Admin creates the Master Address Book file when you open this file for the first time from within MacX.25 Admin.

All of these files must reside in the MacX25 Folder. The MacX25 Folder can reside anywhere on the hard disk of your MacX25 gateway.

△ **Important**   Do not move any of the files or programs in the MacX25 Folder to another location on your hard disk because MacX25 Admin uses only the files and programs in the MacX25 Folder. △

Launching MacX25 Admin for the first time

To use MacX25 Admin for the first time, follow these instructions:

1. **Double-click your hard disk icon to open your hard disk.**

   The system displays a window containing the files and folders on your hard disk.

2. **Locate the MacX25 Folder.**

3. **Open the MacX25 Folder by double-clicking its icon.**

   The system displays the contents of the MacX25 Folder.

4. **Double click the MacX25 Admin icon.**

   MacX25 Admin displays the dialog box that *Figure 3-1* shows.

■ **Figure 3-1**   MacX25 Admin's first dialog box

```
┌──────────────────────────────────────────┐
│ ┌──────────────────────────────────────┐ │
│ │  ◇    No MacH25 Servers File.        │ │
│ │       Installing MacH25.             │ │
│ │                                       │ │
│ │       Enter Admin Key: │┌─────────┐  │ │
│ │  ┌────────┐ ┌────────┐  └─────────┘  │ │
│ │  │   Ok   │ │ Cancel │              │ │
│ │  └────────┘ └────────┘              │ │
│ └──────────────────────────────────────┘ │
└──────────────────────────────────────────┘
```
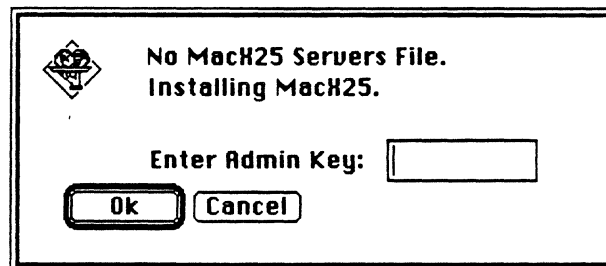
The message, "No MacX25 Servers File," indicates that MacX25 Admin can not find the MacX25 Servers file in the MacX25 Folder. Because you are using MacX25 Admin for the first time, this file does not exist yet.

The message, "Installing MacX25", indicates that MacX25 Admin is creating the MacX25 Servers file.

5. **Type the characters that you want for your Admin key and then click OK.**

You can type in any characters you want for your key. If you click OK without typing anything, no key is stored or required for MacX25 Admin.

When you click OK, MacX25 Admin displays the dialog box that *Figure 3-2* shows.

■ **Figure 3-2**   Verifying the Admin key
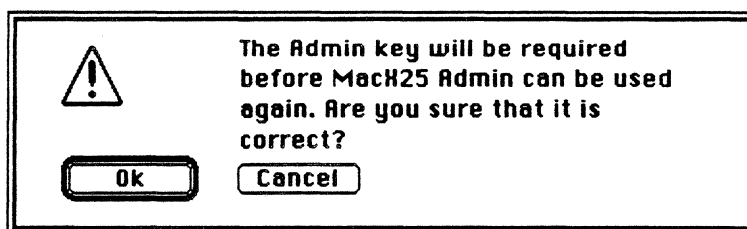
6. **Click OK, if you want the characters that you just typed to be used as the Admin key.**

When you click OK, MacX25 Admin saves your Admin key in the MacX25 Servers file.

MacX25 Admin then displays the dialog box that *Figure 3-3* shows.

■ **Figure 3-3**   MacX25 Admin's next dialog box

```
┌─────────────────────────────────┐
│  ┌───────────────────────────┐  │
│  │     No MacH25 Users File. │  │
│  │ /!\  Creating One.        │  │
│  │     ┌───────────────┐     │  │
│  │     │      Ok       │     │  │
│  │     └───────────────┘     │  │
│  └───────────────────────────┘  │
└─────────────────────────────────┘
```
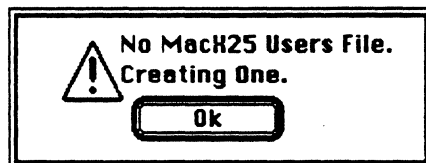
The message, "No MacX25 Users File," indicates that MacX25 Admin can not find the MacX25 Users file in the MacX25 Folder. Because you are using MacX25 Admin for the first time, this file does not exist yet.

7. **Click OK.**

MacX25 Admin is creates the MacX25 Servers file, stores Guest user information in it, and closes the dialog box.

The MacX25 Admin and MacX25 Log windows now appear on your screen. *Figure 3-4* shows how these windows appear when you are using MacX25 Admin for the first time.

The MacX25 Admin and MacX25 Log windows contain information about your MacX25 gateway. You cannot make any changes to these windows.

The MacX25 Admin window has a picture of the Macintosh NuBus slots, and list boxes labeled Servers Users.

By the way a slot appears in the MacX25 Admin window, you can tell whether or not the slot contains an Apple Serial card. In *Figure 3-4*, only slots 3 and 4 have Apple Serial cards. The slots labeled 1, 2, 5, and 6 are either empty or they contain a different type of card.

■ **Figure 3-4** The MacX25 Admin and MacX25 Log windows
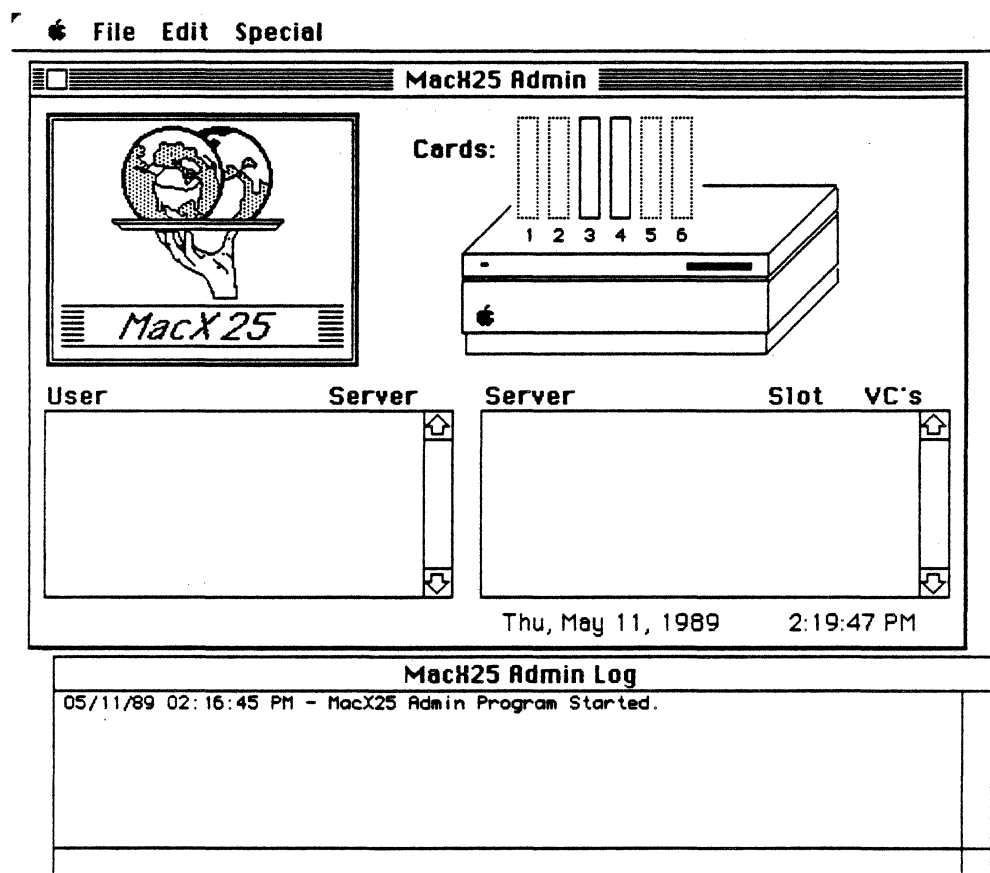
In *Figure 3-4*, the Servers and Users list boxes are empty because you have not created any servers yet.

The MacX25 Log window lists any events that occur while the program is running. For example, in *Figure 3-4*, the log lists one event, that the program has started.

Making changes to the MacX25 gateway

To insure your MacX25 gateway's security, MacX25 Admin has two operating modes: information mode and administration mode. MacX25 Admin always opens in its information mode. To make any changes to the MacX25 gateway, you must put MacX25 Admin into its administration mode.

Putting MacX25 Admin into its administration mode

To put MacX25 Admin into its administration mode, follow these steps:

1. **Choose Administration from the Special menu.**

   Figure 3-5 illustrates this choice.

   ■ **Figure 3-5**   Choosing Administration from the Special menu

   MacX25 Admin displays the dialog box that *Figure 3-6* shows.

   ■ **Figure 3-6**   Entering your Admin key
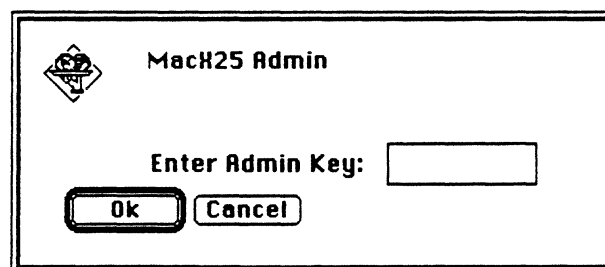
2. Type your Admin key, and click OK.

If you entered an incorrect key, MacX25 Admin displays an error message. Click OK. Then type the correct Admin key and click OK.

If the key you typed is correct, MacX25 Admin enters its administration mode. *Figure 3-7* shows how your screen may appear when you first enter administration mode.

■ **Figure 3-7**   Your first look at MacX25 Admin's administration mode
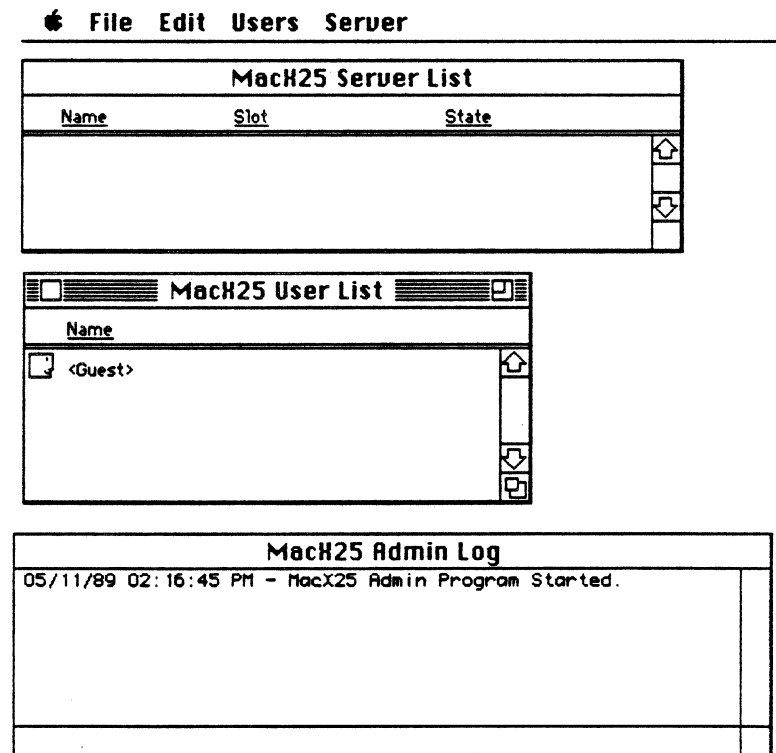
⚫ File Edit Users Server

MacH25 Server List		
Name	Slot	State

MacH25 User List
Name
☐ <Guest>

MacH25 Admin Log
05/11/89 02:16:45 PM - MacX25 Admin Program Started.

When you put MacX25 Admin into its administration mode, your screen changes in the following ways:

■ the MacX25 Admin window disappears from your display

■ the options under the File menu change

■ the Special menu disappears

- a Users menu and a Server menu appear in your menu bar
- User List and Server List windows appear on your screen

The Server List window is empty because you have not yet created any MacX25 servers. The User List window contains the Guest user that MacX25 Admin created when you launched the program.

Changing your Admin key

MacX25 Admin allows you to change your Admin key only when you are in administration mode. If you do not wish to change your Admin key, you can skip to the next section of this chapter.

To change your Admin key, follow these steps:

1. **Choose Change Admin Key from the File menu.**

   Figure 3-8 illustrates this choice.

- **Figure 3-8**   Choosing Change Admin Key

File
Open Parameter File...   ⌘O
Close   ⌘W
Save   ⌘S
Save As...
Revert
Open Master Address Book...
Show Log
Change Admin Key
Quit Admin   ⌘Q

MacX25 Admin displays the dialog box that *Figure 3-9* shows.

■ **Figure 3-9**   Entering your current Admin key

```
┌─────────────────────────────────────────┐
│  ┌───────────────────────────────────┐  │
│  │  ◆                                 │  │
│  │ ◇◆◇  Enter Current Admin Key:     │  │
│  │  ◆                                 │  │
│  │                                    │  │
│  │     Enter Admin Key:  ┌─────────┐  │  │
│  │                       └─────────┘  │  │
│  │    ( Ok )  [ Cancel ]              │  │
│  └───────────────────────────────────┘  │
└─────────────────────────────────────────┘
```
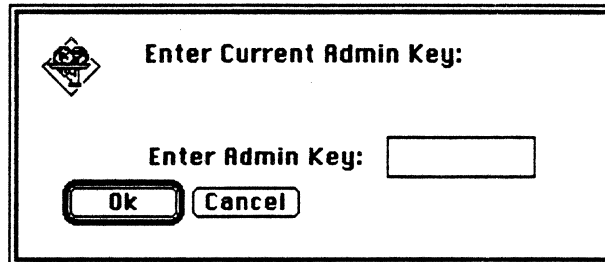
2. Type your current Admin key, and click OK.

Type the uppercase and lowercase characters of your current Admin key.

If you type an incorrect Admin key, MacX25 Admin displays an error message. Click OK. Then retype your Admin key and click OK.

When you enter the current Admin key correctly, MacX25 Admin displays the dialog box that *Figure 3-10* shows.

■ **Figure 3-10**   Entering your new Admin key

```
┌─────────────────────────────────────────┐
│  ┌───────────────────────────────────┐  │
│  │  ◆                                 │  │
│  │ ◇◆◇  Enter New Admin Key:         │  │
│  │  ◆                                 │  │
│  │                                    │  │
│  │     Enter Admin Key:  ┌─────────┐  │  │
│  │                       └─────────┘  │  │
│  │    ( Ok )  [ Cancel ]              │  │
│  └───────────────────────────────────┘  │
└─────────────────────────────────────────┘
```
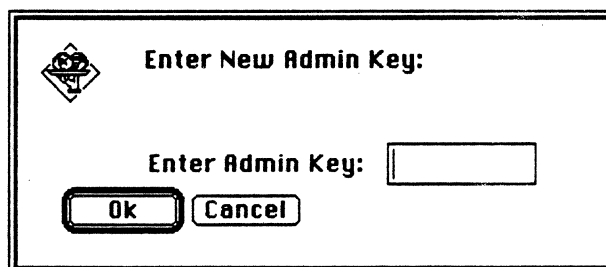
3. Type your new Admin key, and click OK.

When you enter the new Admin key correctly, MacX25 Admin displays a dialog box, asking you to make sure that your new Admin key is correct. Figure 3-2, which appears earlier in this chapter, shows this dialog box.

4. Click OK to verify the new Admin key.

MacX25 Admin saves the new Admin key in the MacX25 Servers file. The next time that you want to put MacX25 Admin into administration mode, you must enter the new Admin key. The old Admin key will no longer work.

Saving the MacX25 Log

MacX25 Admin allows you to save the contents of the MacX25 Log window when you are in administration mode. You can use this feature to keep a permanent record of the events that occur on your MacX25 gateway.

If you do not wish to save the log information, you can skip to the next section of this chapter.

To save the contents of the Log window, follow these steps:

1. Select the MacX25 Log window by clicking anywhere inside it.

MacX25 Admin activates the MacX25 Log window. You can tell the window is active by the horizontal lines that appear in the window's title bar.

2. Choose Save from the File menu.

MacX25 Admin displays the dialog box that *Figure 3-11* shows.

■ **Figure 3-11**   Naming a log file
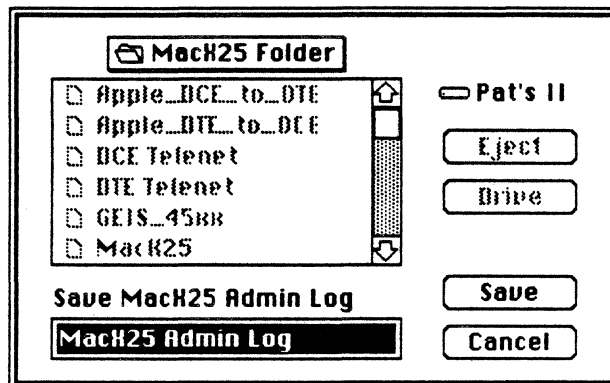
3. **Type a name for the new file, and click OK.**

You can give the new file any name you wish.

MacX25 Admin creates a document file with the name you typed, and stores the contents of the MacX25 Log window in the new file. You cannot see the document file while you are using MacX25 Admin. You can double-click on the file icon to open the file, if the TeachText application is available, or you can open the document file from within a word processor application, such as MacWrite.

Making changes to the MacX25 gateway

When MacX25 Admin is in administration mode, you can make changes to the MacX25 gateway.

You can make changes to the MacX25 Servers file by following the instructions in *Chapter 4*. You can make changes to the MacX25 Users file by following the instructions in *Chapter 5*. *Chapter 6* contains instructions for modifying the MacX25 parameter files. *Chapter 7* tells you how to build and maintain the Master Address Book.

At this point, you may prefer to skip to *Chapter 4* and begin creating MacX25 servers for your gateway, or you can continue reading this chapter to learn more about MacX25 Admin's information mode options.

Returning to information mode

To protect your gateway, you should always return MacX25 Admin to its information mode when you are not performing administrative tasks.

To return to information mode, select Quit Admin from the File menu, as *Figure 3-12* illustrates.

■ **Figure 3-12**   Quitting administration mode

File	
Open Parameter File...	⌘O
Close	⌘W
Save	⌘S
Save As...	
Revert	
Open Master Address Book...	
Show Log	
Change Admin Key	
Quit Admin	⌘Q

Quitting MacX25 Admin

After you start the MacX25 servers in your gateway, you should quit MacX25 Admin only to perform certain maintenance tasks, such as putting a new parameter file into effect, adding another card to the Macintosh, or upgrading the system.

MacX25 Admin provides the Quit option under the File menu, as *Figure 3-13* illustrates.

■ **Figure 3-13**   Quitting MacX25 Admin

```
┌─────────┐
│ File    │
├─────────────────────┐
│ Show Log            │
│ Shutdown...    ⌘Q   │
└─────────────────────┘
```

Protecting the MacX25 gateway files

To protect your gateway, you should periodically copy your MacX25 Folder to a 3.5-inch disk. Then, if something happens to this folder or to any of the files that it contains, you can easily replace them.

Creating and managing MacX25 servers

W ITH MACX25 ADMIN, YOU CAN EASILY CREATE AND MANAGE MACX25 servers for your MacX25 gateway.

This chapter gives instructions for creating MacX25 servers, for starting and stopping the MacX25 servers, for modifying MacX25 server information, and for deleting servers from the MacX25 gateway.

You must put MacX25 Admin into its administration mode before you can perform any of the tasks that this chapter describes. *Chapter 3* discusses MacX25 Admin's two operating modes and contains instructions for putting MacX25 Admin into administration mode.

Creating a new MacX25 server

To create a new MacX25 server, follow these steps:

1. **Choose Create Server from the Server menu, as *Figure 4-1* shows.**

■ **Figure 4-1**   Creating a new server

```
┌─────────────────────────┐
│ Server                  │
├─────────────────────────┤
│ Create Server    ⌘R     │
├─────────────────────────┤
│ Server Info...          │
│ Delete Server           │
├─────────────────────────┤
│ Start                   │
│ Stop                    │
├─────────────────────────┤
│ Server List             │
└─────────────────────────┘
```
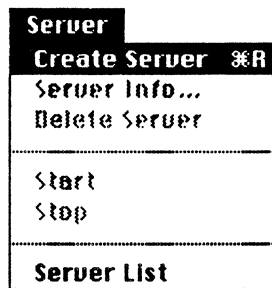
MacX25 Admin displays a new server information window, which *Figure 4-2* shows. The cursor appears in the text box labeled Name.

❖ You can undo the changes that you make to a server information window at any time before you save the window by clicking Undo. When you click Undo, MacX25 Admin displays a new server information window.

■ **Figure 4-2**   A sample new server information window

2. Type in the name that you want to give to the new server.

You can enter up to 31 characters for the name. MacX25 Admin ignores any space characters that you type before or after the name. You can, however, include space characters within the name.

3. Click Select to see a list of the available parameter files.

MacX25 Admin displays a standard file window like the one in *Figure 4-3*. The window contains a list of the X.25 parameter files in the MacX25 Folder.

❖ MacX25 provides parameter files for several widely used X.25 public networks, one of which should fit your X.25 requirements. Appendix B contains tables that show the individual parameter settings in each of the X.25 parameter files that MacX25 provides.

If none of the existing parameter files is appropriate for the MacX25 server you are creating, you can make a new parameter file by following the instructions in *Chapter 6*.

■ **Figure 4-3** Selecting the parameter file for a server


```
┌─────────────────────────────────────────────────────┐
│ ┌─────────────────────────────────────────────────┐ │
│ │                                                   │ │
│ │   Select a Parameter File for server.             │ │
│ │  ┌──────────────────────────────┐▲               │ │
│ │  │Apple_DCE_to_DTE              │�               │ │
│ │  │Apple_DTE_to_DCE              │                 │ │
│ │  │DCE Telenet                   │   ┌──────────┐  │ │
│ │  │DTE Telenet                   │   │   Open   │  │ │
│ │  │GEIS_45HH                     │   └──────────┘  │ │
│ │  │Telenet Dial Out              │   ┌──────────┐  │ │
│ │  │Telenet_Dial_Out              │   │  Cancel  │  │ │
│ │  │Transpac DTE                  │   └──────────┘  │ │
│ │  │                              │▽               │ │
│ │  └──────────────────────────────┘                 │ │
│ │                                                   │ │
│ └─────────────────────────────────────────────────┘ │
└─────────────────────────────────────────────────────┘
```
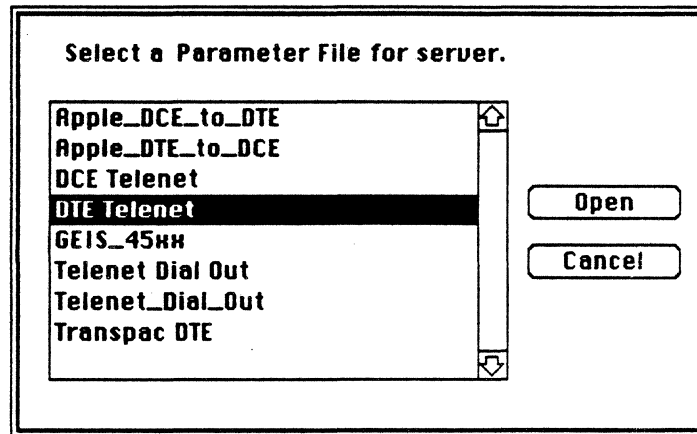
4. Click the name of the parameter file that you want the server to use, and click OK.

MacX25 Admin displays the chosen name on the line that appears after the Parameter File label.

You can now continue with steps 5 and 6, or you can skip to step 7.

5. Indicate in the check box whether you want MacX25 Admin to automatically start this server each time you launch MacX25 Admin.

If the Auto Start check box is empty, you start the server by choosing Start from the Server menu. If the check box contains an X, the server automatically starts each time you launch the MacX25 Admin program.

Typically, you should not specify Auto Start for a MacX25 server when you first create it.

6. Click the slot to which you want to assign the MacX25 server.

MacX25 Admin does not require you to assign a MacX25 server to a slot. If you want to create a server without a slot assignment, skip to step 7.

❖ You can create up to 20 MacX25 servers if some of the servers do not have slot assignments.

You can select only a slot that is available. *Figure 4-4* shows a Slot Assignment box with two available slots. In the figure, slots 3 and 4 are available; slots 1, 2, 5, and 6 do not contain Apple Serial NuBus cards.

■ **Figure 4-4**   How available slots appear
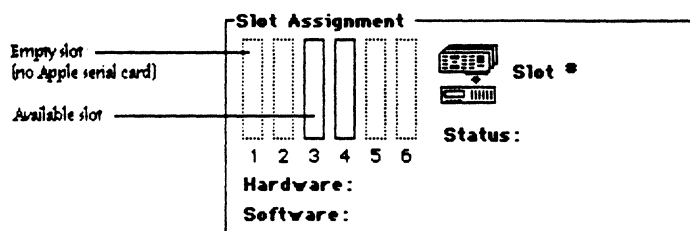
MacX25 Admin highlights the selected slot and changes its fill-pattern, as *Figure 4-5* illustrates. The Slot Assignment box shows the slot number, the type of card that resides in the slot, and the version of MacX25 software that the server uses.

■ **Figure 4-5**   Assigning the slot
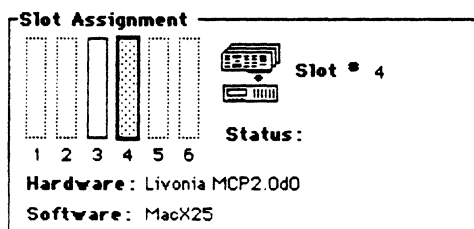
❖ You can click a selected slot to deselect it. When you deselect a slot in this manner, the fill-pattern and highlighting of the slot changes so that the slot appears available. You can then select another available slot for the server.

7. **Click Save.**

❖ If the name of the new MacX25 server is already assigned to another
server in your MacX25 gateway, MacX25 Admin displays an alert box
when you click Save. In this case, click OK to close the alert box,
select and edit the name, and click Save again.

MacX25 Admin saves the server information in the MacX25 Servers file.
The information window now shows a status of active for the server.
The Save button is dimmed and you cannot use it. *Figure 4-6* shows a
typical server information window after you save it.

■ **Figure 4-6**   Saved server information with slot assignment
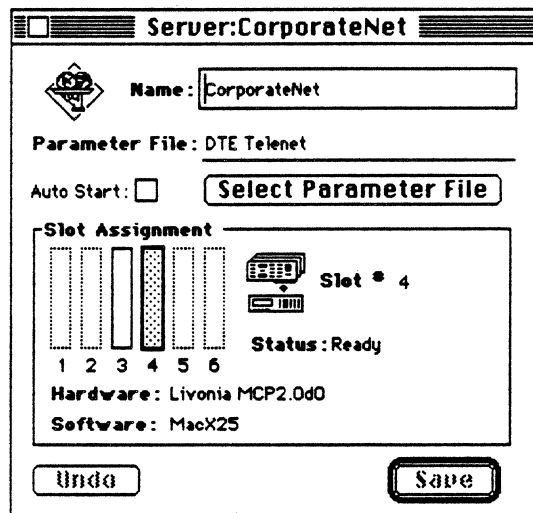
If the MacX25 server has a slot assignment, you can now start the server.

If you prefer, you can create another MacX25 server without closing the
previously saved server's information window. MacX25 Admin can display
up to 10 server information windows on your screen.

Selecting a server

You must select a server to start or stop it, to modify its information, or to delete it from the MacX25 gateway.

You can select a MacX25 server in either of the following ways.

■ by clicking the server's name in the Server List window

■ by activating the server's information window

Using the MacX25 Server List window

The MacX25 Server List window lists all of the MacX25 servers in the MacX25 gateway.

MacX25 Admin automatically displays the MacX25 Server List window when you enter its administration mode. If you close this window, you can get MacX25 Admin to display it again by choosing the Server List command from the Server menu. *Figure 4-7* shows the Server menu with the Server List command highlighted.

■ **Figure 4-7**   Displaying the MacX25 Server List window
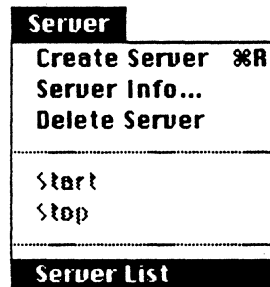
Figure 4-8 contains an example of the MacX25 Server List window for a MacX25 gateway with three MacX25 servers. In the figure, two of the MacX25 servers are assigned to slots in the MacX25 gateway; the other MacX25 server is not assigned to any particular slot.

You can select any of the servers in the list by clicking anywhere on the line that contains the server name.

■ **Figure 4-8**   A sample MacX25 Server List window

MacH25 Server List			
Name	**Slot**	**State**	**Parameters**
CorporateNet	4	Ready	DTE Telenet
R & D Net	Not Assigned	Out Of Service	Apple_DCE_to_DTE
Transpac	3	Ready	DCE Telenet

When you click on a name in the MacX25 Server List window, MacX25 Admin provides commands under the Server menu that are appropriate to the server. For example, if the highlighted server is not assigned to a slot, you can use the Server Info or Delete Server commands from the Server menu. If the server is ready to start, you can use the Server Info, Delete Server, or Start commands. If you select a server that is active or busy, you can use the Server Info or Stop commands. You can find specific instructions for using these commands later in this chapter.

Activating a server information window

You can activate a MacX25 server's information window in any of the following ways:

■ by selecting the server from the list of servers in the MacX25 Server List window and then choosing Server Info from the Server menu

■ by double-clicking the server's name in the MacX25 Server List window

■ by clicking on the information window of the server that you want to activate

■ by double-clicking the server's slot from any server information window

When you activate a MacX25 server's information window, MacX25 Admin brings the window to the front of your display and provides commands under the Server menu which are appropriate to that server.

Starting a MacX25 server

You can start only a server that is ready. A server is ready after you save the contents of its information window, as described earlier in this chapter.

To start a server:

1. Select the server.

2. Choose Start from the Server menu.

The Start command includes the name of the selected server, as *Figure 4-9* shows.

■ **Figure 4-9**   Starting a MacX25 server
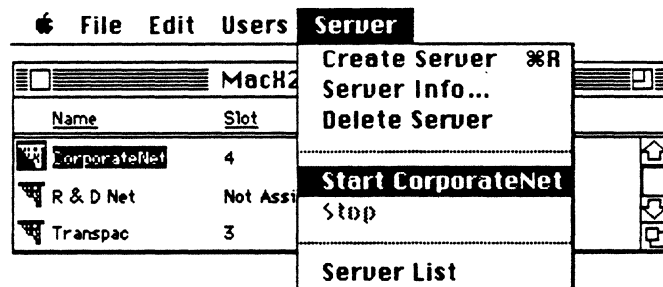
MacX25 Admin starts the server.

❖ If the name of the new MacX25 server is already assigned to another device or server in the AppleTalk network system, MacX25 Admin displays an alert box. In this case, click OK to close the alert box, and rename the server. You can find instructions for renaming the server later in this chapter.

When the server starts, its status changes from ready to active. You can see this change in the status column of the Server List window and in the slot information box of the server information window. MacX25 Admin changes both the slot's fill-pattern and the status in the Slot Assignment box. *Figure 4-10* shows how the slot information box appears after the MacX25 server is started.

■ **Figure 4-10**   Slot 4 as active


```
╔══════════════════════════════════════════════╗
║            Server:CorporateNet                 ║
║  ┌────┐                                         ║
║  │ ◆  │   Name : │CorporateNet            │     ║
║  └────┘                                         ║
║  Parameter File: DTE Telnet                     ║
║  Auto Start: ☐      ( Select Parameter File )   ║
║  ┌─Slot Assignment ──────────────────────────┐  ║
║  │ ┌┐┌┐┌┐██┌┐┌┐    ┌──┐                       │  ║
║  │ ││││││██││││    │▦▦│   Slot # 4            │  ║
║  │ └┘└┘└┘██└┘└┘    └──┘                       │  ║
║  │ 1 2 3 4 5 6     Status: Active              │  ║
║  │ Hardware: Livonia MCP2.0d0                  │  ║
║  │ Software: MacX25                            │  ║
║  └─────────────────────────────────────────────┘ ║
║  ( Undo )                    ( Save )           ║
╚══════════════════════════════════════════════╝
```
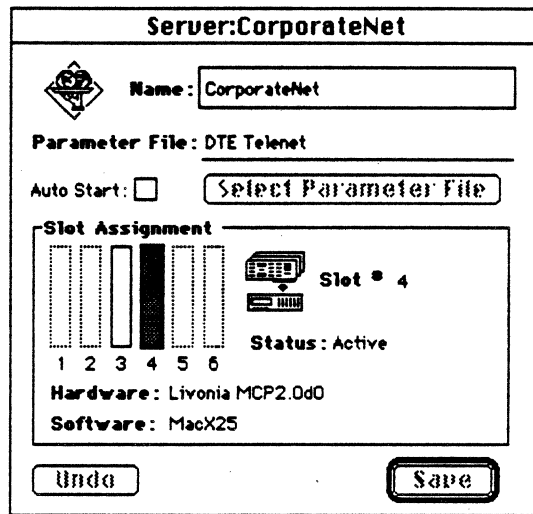
When a server is active, users can connect to the server to make and receive calls through the X.25 network that the server supports. When a user has a virtual call on the server, the status of the server changes to busy. *Figure 4-11* shows how the slot information box appears when the MacX25 server is busy.

■ **Figure 4-11**   Slot 4 as busy
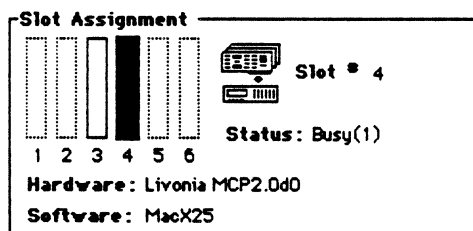

```
┌─Slot Assignment ──────────────────────────┐
│ ┌┐┌┐┌┐██┌┐┌┐    ┌──┐                       │
│ ││││││██││││    │▦▦│   Slot # 4            │
│ └┘└┘└┘██└┘└┘    └──┘                       │
│ 1 2 3 4 5 6     Status: Busy(1)            │
│ Hardware: Livonia MCP2.0d0                 │
│ Software: MacX25                           │
└────────────────────────────────────────────┘
```

Stopping a MacX25 server

You can stop only a MacX25 server that is active or busy. To stop a server:

1. **Select the server.**

2. **Choose Stop from the Server menu.**

   The command includes the name of the selected server, as *Figure 4-12* shows.

■ **Figure 4-12**   Choosing Stop from the Server menu
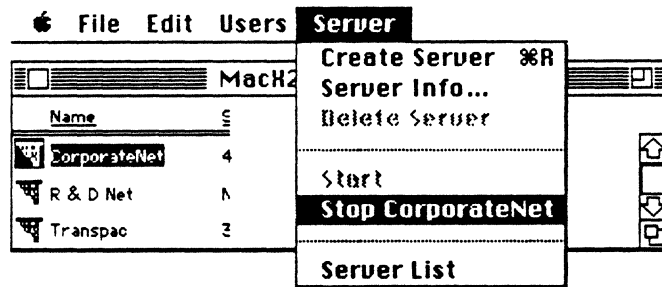
MacX25 Admin displays a MacX25 Stop window. *Figure 4-13* has an example of this window.

■ **Figure 4-13**   A sample MacX25 stop window
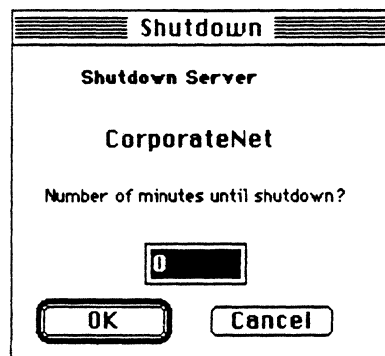
3. Enter the number of minutes that you want MacX25 Admin to wait before stopping the indicated server, and click OK.

You can enter any number from zero to 9999 in the text edit box. If you don't change the zero in the text edit box, MacX25 Admin stops the server immediately after you click OK.

You can specify a pending stop for the server by entering any number other than zero. For example, to specify a pending stop of one hour, you type 60 in the text box. To specify four hours, you type 240. To specify 24 hours, you enter 1440 in the text box. *Figure 4-14* shows a MacX25 Stop window for a one-hour pending stop of the CorporateNet server.

■ **Figure 4-14**   A sample MacX25 stop window

```
┌─────────────────────────────────────┐
│≡≡≡≡≡≡≡≡ Shutdown ≡≡≡≡≡≡≡≡│
├─────────────────────────────────────┤
│                                     │
│        Shutdown Server              │
│                                     │
│        CorporateNet                 │
│                                     │
│  Number of minutes until shutdown?  │
│                                     │
│              ┌─────────┐            │
│              │ 60      │            │
│              └─────────┘            │
│  ┌───────────┐   ┌──────────┐       │
│  │    OK     │   │ Cancel   │       │
│  └───────────┘   └──────────┘       │
└─────────────────────────────────────┘
```
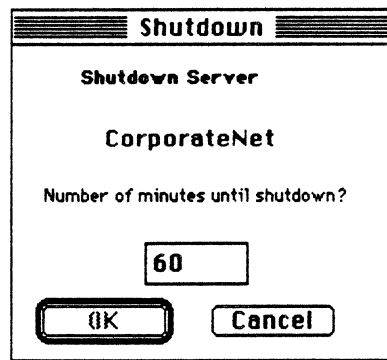
Pending stops

When you set a pending stop, MacX25 Admin continues to display the MacX25 Stop window until the stop occurs or you cancel the pending stop. The text box shows the number of minutes that remain before MacX25 Admin will stop the server. If any users are connected to the server, MacX25 Admin periodically notifies them of the pending stop.

If you set a pending stop for more than one MacX25 server, a separate MacX25 Stop window appears for each server with a pending stop.

When you set a pending stop for an active or busy slot, MacX25 Admin changes the appearance of the slot, as *Figure 4-15* illustrates.

■ **Figure 4-15**   How a slot with a pending stop appears
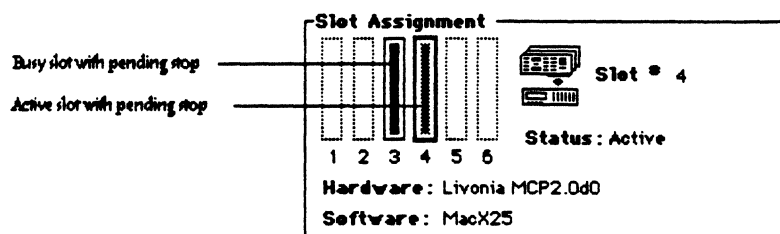
Pending stop windows appear while MacX25 Admin is in administration mode or in information mode. You cannot close a MacX25 Stop window without cancelling the stop; and you can cancel a stop only when MacX25 Admin is in administration mode.

Modifying MacX25 servers

You perform all information changes to a MacX25 server by using its server information window. This section describes the changes that you can make to a MacX25 server and provides instructions for making the changes.

❖ You can undo the changes that you make to a server information window at any time before you save the window by clicking Undo. When you click Undo, the server information window displays the most recently saved information on that server.

Renaming a server

You can rename only a MacX25 server that is currently ready to start. If the server is active or busy, you must stop the server before you can rename it.

To rename a server, follow these steps:

1. **Activate the server information window of the server that you wish to rename.**

2. **Select the current name of the server.**

3. **Type in the new name that you want to give to the server.**

You can enter up to 31 characters for the name. The name that you enter must be unique to the MacX25 gateway and to the AppleTalk network.

4. **Click Save.**

MacX25 Admin saves the new name of the server.

△ **Important**　　When you rename a MacX25 server, you must change the server information in each Master Address Book entry that uses that server. △

Changing the server's parameter file

You can specify a different parameter file for a MacX25 server at any time. MacX25 Admin does not begin using the new parameters, however, until you restart the MacX25 server.

To change the parameter file that a server uses, follow these steps:

1. **Activate the server information window of the server that you wish to change.**

2. **Click the Select Parameter File button.**

MacX25 Admin displays a dialog box that lists the available parameter files.

3. **Double-click the name of the parameter file that you want the server to use.**

MacX25 Admin displays the chosen name on the line that appears after the Parameter File label.

4. **Click Save.**

MacX25 Admin saves the new information in its MacX25 Servers file.

If none of the existing parameter files is appropriate for the MacX25 server, you can make a new parameter file by following the instructions in *Chapter 6.*

Changing the Auto Start setting

You may prefer to manually start a MacX25 server when you create or modify it, and then change the automatic startup setting after you can verify that the MacX25 server is working properly.

To change the automatic startup setting for a server, follow these steps:

1. **Activate the server information window of the server that you wish to change.**

2. **Indicate in the Auto Start check box whether you want MacX25 Admin to automatically start this server each time you open MacX25 Admin.**

   If the Auto Start check box is empty, you start the server by choosing Start from the Server menu. If the check box contains an X, the server automatically starts each time you launch the MacX25 Admin program.

3. **Click Save.**

   MacX25 Admin saves the server information in the MacX25 Servers file.

   The new setting takes effect the next time you launch MacX25 Admin.

Changing the slot assignment

You can change the slot assignment of a server only when the server is ready or is not assigned to a slot.

To change the slot assignment of a server, follow these steps:

1. **Activate the server information window of the server that you wish to change.**

2. **Click the slot to which you want to assign the MacX25 server.**

   MacX25 Admin highlights the selected slot and changes its fill-pattern, as *Figure 4-5* illustrates earlier in this chapter. The Slot Assignment box shows the slot number, the type of card that resides in the slot, the current status of the MacX25 software, and the version of MacX25 software that the server uses.

❖ You can click a selected slot to deselect it. When you deselect a slot in this manner, the fill-pattern and highlighting of the slot changes so that the slot appears available. You can then select another available slot for the server.

3. **Click Save.**

MacX25 Admin saves the new slot assignment in the MacX25 Servers file. Slot assignment changes take effect immediately.

Deleting a MacX25 server

You can delete a MacX25 server only when the server is ready or is not assigned to a slot.

To delete a server from your MacX25 gateway, follow these steps:

1. **Select the server that you wish to delete.**

2. **Choose Delete Server from the Server menu.**

The Delete command includes the name of the selected MacX25 server, as *Figure 4-16* illustrates.

■ **Figure 4-16**   Choosing Delete from the Server menu

```
┌─────────────────────────┐
│ Server                  │
├─────────────────────────┤
│ Create Server    ⌘R     │
│ Server Info...          │
├─────────────────────────┤
│ Delete Server           │
├─────────────────────────┤
│ Start                   │
│ Stop                    │
├─────────────────────────┤
│ Server List             │
└─────────────────────────┘
```
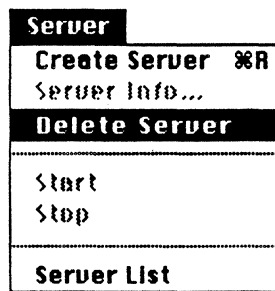
MacX25 Admin displays the alert box that *Figure 4-17* shows.

■ **Figure 4-17**   Deleting a server from the MacX25 gateway

```
┌──────────────────────────────────────────┐
│ ┌──────────────────────────────────────┐ │
│ │                                      │ │
│ │  Are you sure you want to delete     │ │
│ │                                      │ │
│ │  CorporateNet                        │ │
│ │                                      │ │
│ │  ( Cancel )            [    OK    ]   │ │
│ │                                      │ │
│ └──────────────────────────────────────┘ │
└──────────────────────────────────────────┘
```
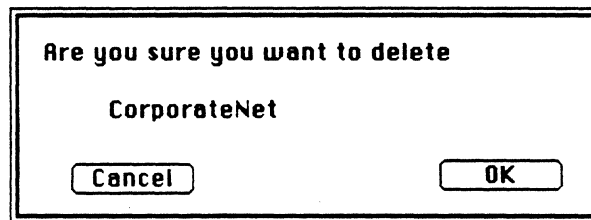
3. Click OK.

When you delete a MacX25 server, MacX25 Admin deletes all of the server's information from the MacX25 Servers file. After you delete a MacX25 server, its name does not appear in the Server List window and you can not gain access to its server information window.

Setting user access to MacX25 servers

Y OU CAN PROVIDE SECURITY FOR THE SERVERS IN YOUR MACX25 GATEWAY BY setting server access privileges for each MacX25 user. MacX25 Admin can support up to 500 users with individually specified access privileges.
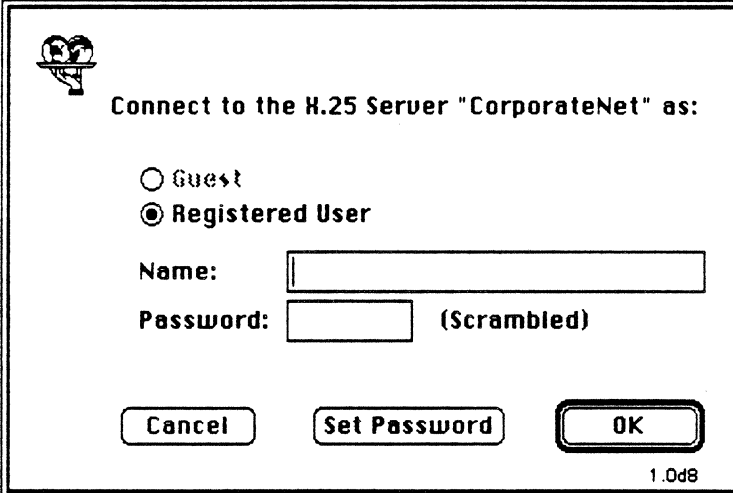
This chapter contains instructions for creating MacX25 users, for modifying the information of existing users, and for deleting users from the gateway.

You must put MacX25 Admin into administration mode before you can perform any of the tasks that this chapter describes. *Chapter 3* discusses MacX25 Admin's two operating modes and contains instructions for putting MacX25 Admin into administration mode.

Providing security for MacX25 servers

When a user on the AppleTalk network chooses a MacX25 server from the Chooser desk accessory or attempts to place an X.25 call using an address book entry, MacX25 Admin displays a dialog box, similar to the one that *Figure 5-1* shows.

■ **Figure 5-1**   Providing secured access to MacX25 servers

```
┌─────────────────────────────────────────────────┐
│  ┌───────────────────────────────────────────┐  │
│  │ ╔═╗                                        │  │
│  │ ╚═╝   Connect to the H.25 Server           │  │
│  │       "CorporateNet" as:                   │  │
│  │                                            │  │
│  │       ○ Guest                              │  │
│  │       ⦿ Registered User                    │  │
│  │                                            │  │
│  │       Name:     │                       │  │  │
│  │                                            │  │
│  │       Password: │      │   (Scrambled)     │  │
│  │                                            │  │
│  │     ( Cancel )  ( Set Password )  ║  OK  ║ │  │
│  │                                    1.0d8   │  │
│  └───────────────────────────────────────────┘  │
└─────────────────────────────────────────────────┘
```

To gain access to the server, the user must enter a name and password that matches user information that you have previously saved. If the user enters information that MacX25 Admin can match, MacX25 Admin allows the connection.   If the user enters information that MacX25 Admin cannot match, MacX25 Admin does not allow the connection.

Although MacX25 Admin automatically creates a Guest user when you first launch the program, it does not automatically set access privileges to any MacX25 servers for the Guest user. For this reason, the Guest option in the figure is dimmed. After you change the Guest information to give guest access to the server, Guest is not dimmed when a user sees the dialog box after selecting that server.

MacX25 Admin allows you to control whether or not a user can change the password. If you enable the change password privilege for a user, the user can click the Set Password button to make the change. If you disable the change password privilege for a user, the Set Password button appears dimmed.

Creating a new user

To create a new user for the MacX25 gateway, follow these steps:

1. **Choose Create User from the Users menu, as *Figure 5-2* shows.**

■ **Figure 5-2**   Creating a new user

Users
Create User... ⌘U
Delete User...
User Info...
User List
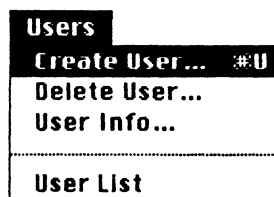
MacX25 Admin displays a new user information window. *Figure 5-3* shows an example of the new user information window. The cursor appears at the beginning of the name field so that you can enter the name first.

■ Figure 5-3   A new user information window

```
┌──────────────────────────────────────────────┐
│ ▣▨▨▨▨▨▨▨▨▨▨▨ User: ▨▨▨▨▨▨▨▨▨▨▨▨ │
│  ┌──────┐                                      │
│  │      │  Name:  ┌──────────────────────┐     │
│  │      │         │ │                    │     │
│  └──────┘         └──────────────────────┘     │
│           Password: ┌──────────────┐           │
│                     │              │           │
│                     └──────────────┘           │
│              Change Password Enabled: ☐        │
│  Login Access: ┌────────────────────────┐☐▲    │
│                │ ▼ CorporateNet      ☐ │ ││    │
│                │ ▼ R & D Net         ☐ │ ││    │
│                │ ▼ Transpac          ☐ │ ││    │
│                │                        │ ││    │
│                │                        │☐▼    │
│                └────────────────────────┘      │
│  ┌─────────┐                    ┌──────────┐   │
│  │  Undo   │                    │   Save   │   │
│  └─────────┘                    └──────────┘   │
└──────────────────────────────────────────────┘
```

❖ You can undo the changes that you make to a user information window at any time before you save the window by clicking Undo. When you click Undo, MacX25 Admin displays a new user information window.

2. Type the name that you want to give to the new user.

You can enter up to 31 characters for the name. MacX25 Admin ignores any space characters that you type before or after the name. You can, however, include space characters within the name.

3. Type a password for the user.

You can enter up to 8 characters for the password. You can see the characters as you type them, as *Figure 5-4* shows; but when you save the user information, MacX25 Admin changes each character to a •. In this way, the password is masked and remains private to the user.

■ **Figure 5-4**   Entering user information

4. **Indicate in the check box that appears after Change Password Enabled whether you want the user to be able to change the password.**

   If the Change Password Enabled check box contains an X, the user can change the password by using the Set Password button on the dialog box that *Figure 5-1* shows. If this check box is empty, the Set Password button on that dialog box is dimmed.

5. **Indicate in the check box next to each server name whether you want the user to have access to that server.**

   Each MacX25 server with saved information appears in the list, whether or not the server is assigned to a slot. A check box appears to the right of the server name.

   If the check box contains an X, the user can gain access to the server. If the check box is empty, the user cannot gain access to the server.

6. **Click Save.**

MacX25 Admin saves the user information in the MacX25 User's file. *Figure 5-5* shows a saved user information window. In the figure, the password is masked, the user can change the password remotely, and the user has access to both MacX25 servers in the list.

❖ If the name of the new MacX25 user is already assigned to an existing user in your MacX25 gateway, MacX25 Admin displays an alert box when you click Save. In this case, click OK to close the alert box, select and edit the name, and click Save again.

■ **Figure 5-5**   Saved user information

```
┌─────────────────────────────────────────────────┐
│ ▤□ ▤▤▤▤   User:Andy Richard   ▤▤▤▤▤▤▤▤         │
│                                                   │
│  ┌───────┐                                        │
│  │       │  Name:  │Andy Richard              │   │
│  └───────┘                                        │
│            Password: │●●●●●●●●│                    │
│                                                   │
│                   Change Password Enabled: ☒      │
│                                                   │
│  Login Access: ┌──────────────────────┬─┐         │
│                │ ▼ CorporateNet   ☒   │⇧│         │
│                │ ▼ R & D Net      ☒   │ │         │
│                │ ▼ Transpac       □   │ │         │
│                │                      │ │         │
│                │                      │⇩│         │
│                └──────────────────────┴─┘         │
│  ┌────────┐                      ┌────────┐       │
│  │  Undo  │                      │  Save  │       │
│  └────────┘                      └────────┘       │
└─────────────────────────────────────────────────┘
```

The user can now connect to any of the MacX25 servers to which you gave the user access privileges in step 5.

If you prefer, you can create another MacX25 user without closing the previously saved user's information window. MacX25 Admin can display up to 10 user information windows on your screen.

Selecting a user

You must select a user to modify the information on that user or to delete the user from the MacX25 Users file. You can select a MacX25 user in either of the following ways:

- by clicking the user name in the MacX25 User List window

- by activating the user information window of the user you want to select

Using the MacX25 User List window

MacX25 Admin provides a MacX25 User List window that lists all of the users in its MacX25 Users file. MacX25 Admin automatically displays the MacX25 User List window when you enter its administration mode. If you close this window, you can get MacX25 Admin to display the window again by choosing the User List command from the Users menu. *Figure 5-6* shows the Users menu with the User List command highlighted.

- **Figure 5-6**   Displaying the MacX25 User List window

```
 Users
 Create User...  ⌘U
 Delete User...
 User Info...
 User List
```

Figure 5-7 contains an example of the MacX25 User List window. You can select any of the users in the list by clicking the user's name.

■ **Figure 5-7**   A sample MacX25 User List window

```
┌─────────────────────────────────────────┐
│          MacH25 User List               │
├─────────────────────────────────────────┤
│  Name                                 ▲ │
├─────────────────────────────────────┬───┤
│  ☐  <Guest>                         │   │
│  ☐  Andy Richard                    │   │
│  ☐  Barbara Spencer                 │   │
│  ☐  Dave Robertson                  │   │
│  ☐  Joyce Clark                     │   │
│  ☐  Pat Johnson                     │   │
│  ☐  Susan Wan                       │   │
│                                     │   │
└─────────────────────────────────────┴───┘
```
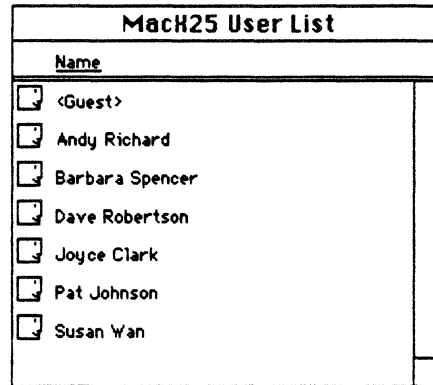
When you select a name in the MacX25 User List window, you can use the Delete User command to delete the user from the gateway or you can use the User Info command to display the user's information window so that you can modify its contents. Both of these commands appear under the Users menu.

Activating the user information window

You can activate a user's information window in any of the following ways:

■ by selecting the user name in the MacX25 User List window and then choosing User Info from the Users menu

■ by double-clicking the user name in the MacX25 User List window

■ by clicking on the inactive information window of the user

When you activate a user's information window, MacX25 Admin brings the window to the front of your display and provides commands under the Users menu that are appropriate to the user.

Changing existing users

This section describes the changes that you can make to a user and provides instructions for making the changes. Unlike changes to server information, all changes to a user's information take effect immediately after you save the changes.

❖ You can undo the changes that you make to a user information window at any time before you save the window by clicking Undo. When you click Undo, the user information window displays the most recently saved information on that user.

Renaming a user

Occasionally a user requires a name change. To rename a user, follow these steps:

1. **Activate the user information window of the user whose name you wish to change.**

2. **Select the current user name, and type the new name.**

   You can enter up to 31 characters for the name. MacX25 Admin ignores any space characters that you type before or after the name. You can, however, include space characters within the name.

3. **Click Save.**

   If you enter a name that is already assigned to another user in the MacX25 gateway, MacX25 Admin displays an alert box. In this case, click OK to close the alert box. Then enter a variation that makes the name unique.

Changing a password

You can change a user's password at any time. To do so, follow these steps:

1. **Activate the user information window of the user whose password you wish to change.**

2. **Select the current password , and then type the new password.**

   You can enter up to 8 characters for the password. You can see the characters as you type them.

3. Click Save.

MacX25 Admin saves the change, and masks the new password, as *Figure 5-5* shows, so the password is private to the user.

Modifying the Change Password Enabled setting

To modify the Change Password Enabled setting for a user, follow these steps:

1. **Activate the user information window of the user whose setting you wish to change.**

2. **Indicate in the Change Password Enabled check box whether you want the user to be able to change the password.**

   If the Change Password Enabled check box contains an X, the user can change the password by using the Set Password button on the dialog box that *Figure 5-1* shows. If this check box is empty, the Set Password button in this dialog box is dimmed.

3. **Click Save.**

Changing a user's server access privileges

Before MacX25 Admin will allow guest users to gain access to a server, you must change this setting in the Guest user information window.

You can change a user's access privileges to any server at any time. To change a user's access privileges for one or more MacX25 servers, follow these steps:

1. **Activate the user information window of the user whose setting you wish to change.**

2. **Indicate in the check box next to each server whether you want the user to be able to use that server.**

   Each MacX25 server with saved information appears in the list, whether or not the server is assigned to a slot. A check box appears to the right of the server name. If the check box contains an X, the user can gain access to the server. If the check box is empty, the user cannot gain access to the server.

3. **Click Save.**

Deleting a user

To delete all of the information on a user, follow these steps:

1. **Select the user that you wish to delete.**

2. **Choose Delete User from the Users menu.**

   Figure 5-8 illustrates the Users menu with the Delete User command highlighted.

   ■ **Figure 5-8**   Deleting a user from the gateway

   ```
   ┌─────────────────────────┐
   │ Users                   │
   ├─────────────────────────┤
   │ Create User...    ⌘U    │
   │ Delete User...          │
   │ User Info...            │
   ├─────────────────────────┤
   │ User List               │
   └─────────────────────────┘
   ```
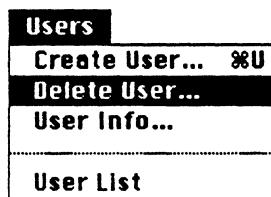
   MacX25 Admin displays an alert box, like the one in *Figure 5-9.*

   ■ **Figure 5-9**   Deleting a user from the gateway

   ```
   ┌─────────────────────────────────────────┐
   │                                         │
   │  Are you sure you want to delete        │
   │                                         │
   │     Andy Richard                        │
   │                                         │
   │  ( Cancel )              (  OK  )       │
   │                                         │
   └─────────────────────────────────────────┘
   ```
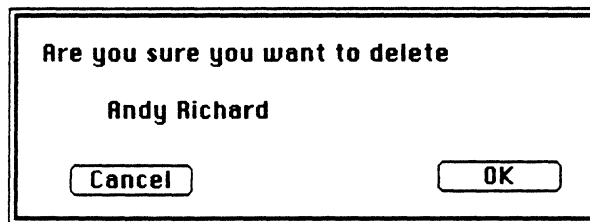
3. **Click OK.**

   MacX25 Admin deletes the user information from the MacX25 Users file and removes the user name from the MacX25 User List window.

Setting X.25 Parameters

THE MACX25 PRODUCT PROVIDES PARAMETER FILES THAT CONTAIN THE CORRECT X.25 parameter settings for several commonly used public packet-switched data networks. The name of the file indicates the network vendor that uses the X.25 parameter settings in the file.

This chapter contains instructions for opening a parameter file, for displaying and modifying specific settings, and for saving the changes.

You must be in MacX25 Admin's administration mode to perform the tasks described in this chapter. You can find instructions for putting MacX25 Admin into administration mode in *Chapter 3.*

About X.25 parameters

When you subscribe to services from a packet-switched data network, you must negotiate with the network vendor on approximately 150 X.25 parameters for your particular situation. The network vendor usually tells you what setting to use for each of the X.25 parameters. Once you determine these parameter settings, you must incorporate them into your X.25 software.

If MacX25 provides a parameter file for the packet-switched data network to which your MacX25 server connects, your MacX25 server can use that parameter file with few, if any, modifications.

If you are using a private or public packet-switched data network for which there is no existing MacX25 parameter file, you can refer to Appendix B to determine the parameter file that most closely matches your requirements. Each table in Appendix B shows the 31 parameters that you can dynamically set with MacX25 Admin, along with the parameter settings that you cannot change.

△ **Important**   Do not remove the parameter files from the MacX25 Folder. MacX25 Admin uses only the files in the MacX25 Folder, and does not provide a command to create an empty parameter file. You must use an existing parameter file to create a new parameter file for your MacX25 server. △

If you need to modify a parameter that you cannot change with MacX25 Admin, you should contact your Apple Technical Support representative for assistance.

Opening a parameter file

Follow these instructions to open a parameter file:

1. Choose Open Parameter File from the File menu.

Figure 6-1 shows the File menu with the Open Parameter File command highlighted.

■ **Figure 6-1**   Choosing Open Parameter File from the File menu

MacX25 Admin displays a dialog box listing all of the parameter files in the MacX25 Folder. *Figure 6-2* shows an example of this dialog box.

■ **Figure 6-2**   Selecting the parameter file to open
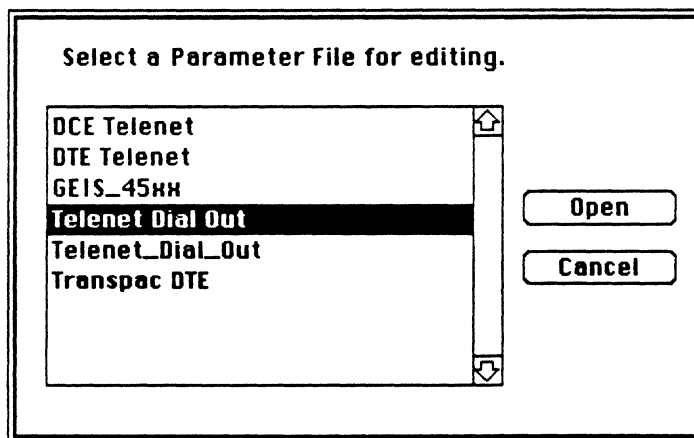
2. Open the parameter file that you want to see.

To open the file, you can double-click its name in the list or you can select the filename and click Open.

MacX25 Admin displays the parameter file window showing the settings for the Addressing parameter group. *Figure 6-3* illustrates the parameter file window.

■ **Figure 6-3** The parameter file window

The name of the file appears in the title bar of the window. The Used By list box shows all of the MacX25 servers that use the parameter file. The Comment text box contains a brief note about the current parameter file. The lower portion of the window shows the current setting of each parameter in the Addressing parameter group.

If you wish to edit the current comment, do step 3. Otherwise, you can begin viewing the parameter groups and making changes to the settings as needed.

3. Edit the text in the Comment box.

You can edit the text in the Comment box by highlighting the characters that you wish to change and typing the new information.

If you type more text than the window can display, you can scroll up the text by highlighting the text at the top and dragging your mouse up; you can scroll down the text by highlighting the text at the bottom and dragging your mouse down.

You can now begin working with the parameter groups.

With MacX25 Admin, you can have several open MacX25 parameter files on your screen. If you are viewing more than one parameter file, only one parameter file window is active.

Working with parameter groups

MacX25 Admin groups the X.25 parameters whose settings you can change into the following parameter groups:

■ Addressing parameters

■ Channel Allocation parameters

■ Charging options

■ Frame Level parameters

■ Packet and Window Size parameters

■ Timers

This section contains instructions for viewing and making changes to the current parameter settings of each parameter group.

You can find a brief description of each of the parameters in Appendix C of this guide. Contact your packet-switched data network vendor for more detailed descriptions and for specific setting information.

Setting Addressing parameters

This section contains instructions for viewing and making changes to the Addressing parameter settings. If you are already viewing Addressing parameters, you can skip step 1.

To work with the Addressing parameters, follow these instructions:

1. **Select Addressing from the pop-up menu under the parameter file icon.**

   Figure 6-4 shows this pop-up menu with Addressing highlighted. *Figure 6-3* illustrates how Addressing parameters appear in the window.

■ **Figure 6-4**   Choosing the Addressing parameter group

```
✓Addressing
 Charging
 Channel Allocation
 Frame Level
 Packet & Window Size
 Timers
```
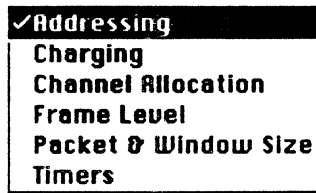
2. **Indicate whether the MacX25 server acts as data terminal equipment (DTE) or as data communications equipment (DCE).**

   If the DTE radio button contains a dot, the MacX25 server acts as a DTE. If the DCE radio button contains a dot, the MacX25 server acts as a DCE.

3. **Specify the full Network ID for the MacX25 server.**

   The first four digits of the Network ID uniquely identifies the packet-switched data network. For example, the four-digit ID for Telenet is 3110 hexadecimal (hex).

   The remaining digits uniquely identify the MacX25 server on the packet-switched data network. The network vendor assigns this address and uses it to deliver packets to the MacX25 server.

4. **Select from the CUG pop-up menu the closed user group subscription that the MacX25 server uses.**

   Figure 6-5 shows the closed user group options as they appear in the CUG pop-up menu.

■ **Figure 6-5**   Closed user group options

```
┌─User Groups ──────────────────────────────────┐
│ ┌──────┬──────────────────────────────┐        │
│ │ CUG  │ None                         │        │
│ ├──────┼──────────────────────────────┤        │
│ │ BCUG │ IA/OA without preferential   │        │
│ └──────│ OA without preferential      │────────┘
│        │ IA without preferential      │
│        │ IA/OA with preferential      │
│        │ OA with preferential         │
│        │ IA with preferential         │
│        │ with preferential            │
│        └──────────────────────────────┘
```

5. **Indicate whether your MacX25 server has a bilateral closed user group (BCUG) subscription.**

   If the Yes radio button contains a dot, the MacX25 server has a bilateral closed user group subscription. If the No radio button contains a dot, the MacX25 server does not have a bilateral closed user group subscription.

Setting Channel Allocation parameters

A logical channel number (LCN) is a value that uniquely identifies each virtual circuit on the X.25 link.

When the MacX25 server acts as the DTE, it assigns the LCN for each outgoing call, whether the call uses a two-way channel or an outgoing (only) channel. When the MacX25 server acts as the DCE, it assigns the LCN for each incoming call, whether the call uses a two-way channel or an incoming (only) channel. The MacX25 server's Channel Allocation settings must match the channel allocation settings that the network uses.

To view the current Channel Allocation settings, follow this instruction:

Choose Channel Allocation from the pop-up menu under the parameter file icon, as *Figure 6-6* shows.

■ Figure 6-6   Choosing the Channel Allocation parameter group

```
 Addressing
 Charging
✓Channel Allocation
 Frame Level
 Packet & Window Size
 Timers
```

MacX25 Admin displays the Channel Allocation settings, as *Figure 6-7* shows.

■ Figure 6-7   Channel Allocation parameters

How you change Channel Allocation settings

MacX25 Admin allows you to allocate up to 64 logical channel numbers among the three types of channels that MacX25 supports. *Figure 6-7* shows the supported channel types, which include outgoing channels, two-way channels, and incoming channels.

❖ MacX25 does not support permanent virtual circuits (PVCs); so you cannot allocate any PVC channels.

A check box precedes each type of channel. The check box indicates whether the MacX25 server uses this type of channel. If the check box contains an X, you must specify at least one LCN for that channel type. If the check box is empty, you cannot allocate any channels of that type.

You use the arrow controls that appear under Low to increase or decrease the lowest LCN for the channel type. The arrow pointing up increases the LCN; the arrow pointing down decreases the LCN.

You use the arrow controls that appear under Quantity to increase or decrease the total number of channel numbers for the channel type.

MacX25 Admin does not allow you to overlap the range of any two channel types or to specify a range out of the required order.

Sample instructions

To demonstrate how this works, the following procedure describes how you can change the Channel Allocation settings in *Figure 6-7*, which shows all 64 LCNs allocated to two-way channels, to the following settings:

10 incoming channels with LCNs of 1 through 10

50 two-way channels with LCNs of 200 through 249

4 outgoing channels with LCNs of 250 through 253.

1. **Use the arrow pointing down that appears next to 64 to decrease the number of LCNs for two-way channels to 50.**

   MacX25 Admin decreases the quantity, adjusts the value of the highest two-way LCN, and adjusts the number of Used channels, as *Figure 6-8* shows.

   You now have 14 available LCNs that you can allocate to another type of channel.

■ **Figure 6-8**   Providing available channels

```
┌─ Channel Allocation ────────────────────────────────────┐
│                                                          │
│                        Low        High      Quantity     │
│                                                          │
│   □ Outgoing Channels:  ____ [↕]            ____ [↕]     │
│                                                          │
│   ⊠ Two-Way Channels:   __1_ [↕]    50       _50 [↕]     │
│                                                          │
│   □ Incoming Channels:  ____ [↕]            ____ [↕]     │
│                                                          │
│                                    Used     50           │
│                                    Maximum  64           │
│                                                          │
└──────────────────────────────────────────────────────────┘
```

2. Use the arrow pointing up that appears next to 1 to increase the lowest logical channel number for two-way channels to 200.

If you hold your mouse down on the arrow, MacX25 increases the value by ones, then by tens, then by one-hundreds. MacX25 Admin allows you specify LCNs up to 4096.

You can now allocate incoming channels.

3. Click the Incoming Channels check box.

MacX25 Admin sets the lowest LCN for Incoming channels to 1, calculates the total incoming channels from the available LCNs, and displays the new High, Quantity, and Used values.

Figure 6-9 illustrates how the Channel Allocation parameter box appears after you perform steps 2 and 3.

■ **Figure 6-9**   Allocating incoming channels

```
┌─ Channel Allocation ──────────────────────────────────┐
│                                                        │
│                      Low       High      Quantity      │
│   □ Outgoing Channels:  ____ [⬍]           ____ [⬍]    │
│                                                        │
│   ☒ Two-Way Channels:    200 [⬍]   249       50 [⬍]    │
│                                                        │
│   ☒ Incoming Channels:     1 [⬍]    14       14 [⬍]    │
│                                                        │
│                                       Used     64      │
│                                                        │
│                                    Maximum     64      │
│                                                        │
└────────────────────────────────────────────────────────┘
```

4. **Use the arrow pointing down that appears next to 14 to decrease the quantity of incoming channels to ten.**

MacX25 Admin changes the quantity and adjusts the high incoming channel number and the number of Used channels, as *Figure 6-10* shows.

You now have 4 available LCNs that you can allocate to outgoing channels.

■ **Figure 6-10**   Decreasing the number of incoming channels

```
┌─ Channel Allocation ──────────────────────────────────┐
│                                                        │
│                      Low       High      Quantity      │
│   □ Outgoing Channels:  ____ [⬍]           ____ [⬍]    │
│                                                        │
│   ☒ Two-Way Channels:    200 [⬍]   249       50 [⬍]    │
│                                                        │
│   ☒ Incoming Channels:     1 [⬍]    10       10 [⬍]    │
│                                                        │
│                                       Used     60      │
│                                                        │
│                                    Maximum     64      │
│                                                        │
└────────────────────────────────────────────────────────┘
```

5. Click the Outgoing Channels check box.

MacX25 Admin calculates the available number of channels, and enters the lowest possible LCN values for the new channels, as *Figure 6-11* shows.

■ **Figure 6-11**   Allocating the outgoing channels

```
┌─ Channel Allocation ──────────────────────────────┐
│                                                    │
│                     Low       High      Quantity   │
│                                                    │
│   ⊠ Outgoing Channels:   250 ⬍    253      4 ⬍     │
│                                                    │
│   ⊠ Two-Way Channels:    200 ⬍    249     50 ⬍     │
│                                                    │
│   ⊠ Incoming Channels:     1 ⬍     10     10 ⬍     │
│                                                    │
│                                     Used      64   │
│                                                    │
│                                    Maximum    64   │
│                                                    │
└────────────────────────────────────────────────────┘
```

Setting Charging options

To view and make changes to the Charging options, follow these instructions:

1. Choose Charging from the pop-up menu under the parameter file icon, as *Figure 6-12* shows.

■ **Figure 6-12**   Choosing the Charging parameter group

```
┌──────────────────────┐
│ Addressing           │
│ ✓Charging            │
│ Channel Allocation   │
│ Frame Level          │
│ Packet & Window Size │
│ Timers               │
└──────────────────────┘
```

MacX25 Admin displays the Charging options, as *Figure 6-13* shows.

■ **Figure 6-13** Charging options

Telenet_Dial_Out

Used By:

Comments

Default X.25 Configuration File for
Telenet Dial-Out Operations

Charging

○ Allow Reuerse Charging
◉ Preuent Local Charging

2. Indicate which type of Charging the MacX25 server uses.

If the Allow Reverse Charging radio button contains a dot, a MacX25 user can make a connection and bill the call to the destination host.

If the Prevent Local Charging radio button contains a dot, a remote caller cannot make a connection to a MacX25 user and charge the call to the MacX25 server.

Setting Frame Level parameters

The Frame Level parameter group contains parameters that affect how the MacX25 server handles operations at the frame level. Frame Level parameters include window settings, frame level timer settings, and a connection mode specification.

You can find information on all of the Frame Level parameters except T4 in the *CCITT Recommendation X.25*, also known as the *Redbook*. The International Standards Organization (ISO) defines the T4 timer.

To view and change any of the Frame Level parameters, follow these instructions:

1. **Choose Frame Level from the pop-up menu under the parameter file icon, as** *Figure 6-14* **shows.**

■ **Figure 6-14**   Choosing the Frame Level parameter group

```
┌──────────────────────────┐
│  Addressing              │
│  Charging                │
│  Channel Allocation      │
│ ✓Frame Level             │
│  Packet & Window Size    │
│  Timers                  │
└──────────────────────────┘
```
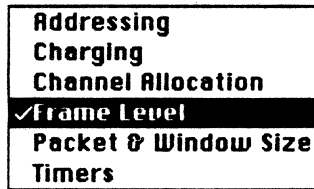
MacX25 Admin displays the Frame Level parameters, as *Figure 6-15* shows.

■ **Figure 6-15**   Frame Level parameters

┌───┐
│ ▦▢▦▦▦▦▦▦▦▦ Telenet_Dial_Out ▦▦▦▦▦▦▦ │
│   │
│   Used By: Comments   │
│   ┌────────────────────────┐⇧ ┌───────────────────────────┐│
│ ⊠ │   │   │Default X.25 Configuration File for ││
│   │   │   │Telenet Dial-Out Operations ││
│   │   │⇩ └───────────────────────────┘│
│   └────────────────────────┘   │
│   │
│ ┌─Frame Level──┐│
│ │ ┌─Window──────────┐ ┌─Timers──────────────────────┐   ││
│ │ │   │ │ T1 │60 │ msec.   │   ││
│ │ │ Maximum Size 7 ⊕│ │   │   ││
│ │ │ Modulo ⊙8 ○128 │ │ T4 │10 │ sec.   │   ││
│ │ │   │ │ N2 │20 │ Repetition Count │   ││
│ │ └─────────────────┘ └─────────────────────────────┘   ││
│ │   ││
│ │ Connection Mode [Wait for SABM]   ││
│ └───┘│
└───┘

2. **Indicate which numbering system, or Modulo, the MacX25 server's frame level software uses.**

If the 8 radio button contains a dot, the MacX25 server uses Modulo 8. If the 128 radio button contains a dot, the MacX25 server uses Modulo 128.

3. **Use the arrows to the right of Maximum Size to set the maximum number of frames that the server can send or receive without acknowledgment**

If you click the arrow pointing up, MacX25 Admin increases the setting; if you click the arrow pointing down, MacX25 Admin decreases the setting.

If the MacX25 server uses Modulo 8, you can set the maximum window size to any value from 1 through 7. If the MacX25 server uses Modulo 128, you can set the maximum window size to any value from 1 through 127.

4. **Choose the connection mode that the MacX25 server uses from the Connection Mode pop-up menu.**

MacX25 supports two connection modes, Wait for SABM and Send SABM, as *Figure 6-16* shows. A SABM is a type of packet that the local and remote X.25 frame level software exchanges to establish a new virtual circuit.

If the network sends the SABM, choose Wait for SABM. If the network expects the MacX25 server to send the SABM, choose Send SABM.

■ **Figure 6-16**   Connection mode options

5. Set the value of the T1 timer, if needed.

The T1 parameter indicates the number of 50 millisecond units that occur before the MacX25 server retransmits a frame. For example, if you enter 60 in the text edit box for this parameter, you are specifying 3000 milliseconds, or 3 seconds.

6. Set the value of the T4 timer, if needed.

The T4 parameter specifies how many seconds the MacX25 server waits for an event to occur on the line before the MacX25 server sends a Receiver Ready (RR) frame to the network. You can disable this timer by setting its value to zero.

7. Set the value of the N2 repetition count, if needed.

N2 is a counter. You indicate in its text edit box the maximum number of times that the MacX25 server can retransmit a frame under error conditions before the MacX25 server resets the link.

Setting packet and window parameters

The Packet and Window Size parameter group contains parameters that affect how the MacX25 server handles operations at the packet level. You and your network vendor must agree to these settings when you subscribe to the network.

To view and change any of the Packet and Window Size parameter settings, follow these instructions:

1. Select Packet & Window Size from the pop-up menu under the parameter file icon, as *Figure 6-17* shows.

■ **Figure 6-17** Choosing the Packet & Window Size parameter group

```
┌─────────────────────┐
│ Addressing          │
│ Charging            │
│ Channel Allocation  │
│ Frame Level         │
├─────────────────────┤
│ ✓Packet & Window Size│
│ Timers              │
└─────────────────────┘
```
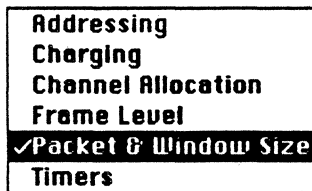
MacX25 Admin displays the Packet and Window Size parameters, as *Figure 6-18* shows.

■ **Figure 6-18**   Packet and Window Size parameters

The Packet box contains two pop-up menus that you use to specify the default and maximum length of a packet that the MacX25 server can send or receive. *Figure 6-19* shows the options that you can select for these parameters.

■ **Figure 6-19**   Packet Default Length and Maximum Length options
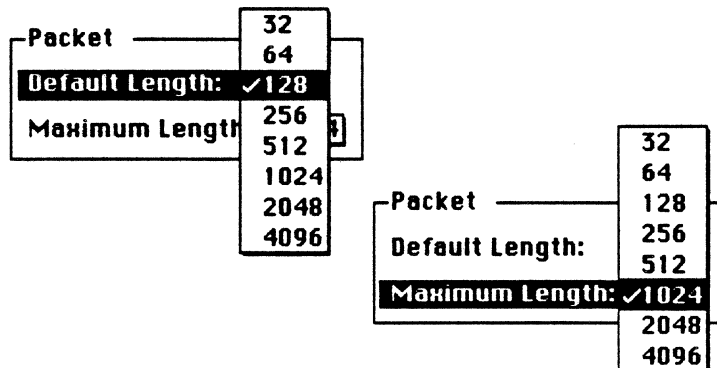
The Window box for the Packet Level parameters contains three settings:
Default Size, Maximum Size, and Modulo. The window size determines
the number of packets that the network can send to, or receive from, the
MacX25 server without confirmation.

**2. Choose the packet length that the MacX25 server normally uses
from the Default Length pop-up menu.**

You can choose a default packet length of 32, 64, 128, 256, 512, 1024, 2048, or
4096. If any of these options are dimmed in the pop-up menu, you
cannot choose the option.

**3. Choose the largest packet length that the MacX25 server can send
or receive from the Maximum Length pop-up menu.**

You can choose a maximum packet length of 32, 64, 128, 256, 512, 1024,
2048, or 4096. If any of these options are dimmed in the pop-up menu,
you cannot choose the option.

**4. Indicate which numbering system, or Modulo, the MacX25 server's
packet level software uses.**

If the 8 radio button contains a dot, the MacX25 server uses Modulo 8. If
the 128 radio button contains a dot, the MacX25 server uses Modulo 128.
Figure 6-20 shows an example of the Window box for a MacX25 server
that uses Modulo 128.

■ **Figure 6-20**   Sample window settings with Modulo 128

```
┌─Window ──────────────────────┐
│ Default Size        10 🔼🔽   │
│ Maximum Size       127 🔼🔽   │
│ Modulo      ○ 8    ◉ 128     │
└──────────────────────────────┘
```

The Modulo that the MacX25 server uses for packet level operations affects the setting of both the default and maximum window size.

5. **Use the arrows to the right of Default Size to set the window size that the MacX25 server uses when it does not negotiate a window size with the network.**

   If you click the arrow pointing up, MacX25 Admin increases the setting; if you click the arrow pointing down, MacX25 Admin decreases the setting.

   If the MacX25 server uses Modulo 8, you can set the default window size to any value from 1 through 7. If the MacX25 server uses Modulo 128, you can set the maximum window size to any value from 1 through 127.

   You cannot set a default window size that is larger than the maximum window size.

   The MacX25 server uses the Default Size setting when it does not negotiate with the network for this value.

6. **Use the arrows to the right of Maximum Size to set the largest window size that the MacX25 server can use.**

   If you click the arrow pointing up, MacX25 Admin increases the setting; if you click the arrow pointing down, MacX25 Admin decreases the setting.

   If the MacX25 server uses Modulo 8, you can set the maximum window size to any value from 1 through 7. If the MacX25 server uses Modulo 128, you can set the maximum window size to any value from 1 through 127.

   The Maximum Size parameter specifies the largest window size that the MacX25 server can use.

Setting the timers

The Timers parameter group displays the current settings for the T20, T21, T22, T23, T24, T25, T26, and T28 packet-level timers. You should negotiate these values with your network vendor before setting them in the MacX25 parameter file

You can find information on the T20, T21, T22, T23, and T28 timers in the *CCITT Recommendation X.25*, also known as the *Redbook.* The International Standards Organization (ISO) defines the T24, T25, and T26 timers.

To view and change any of the settings in the Timers parameter group, follow these instructions:

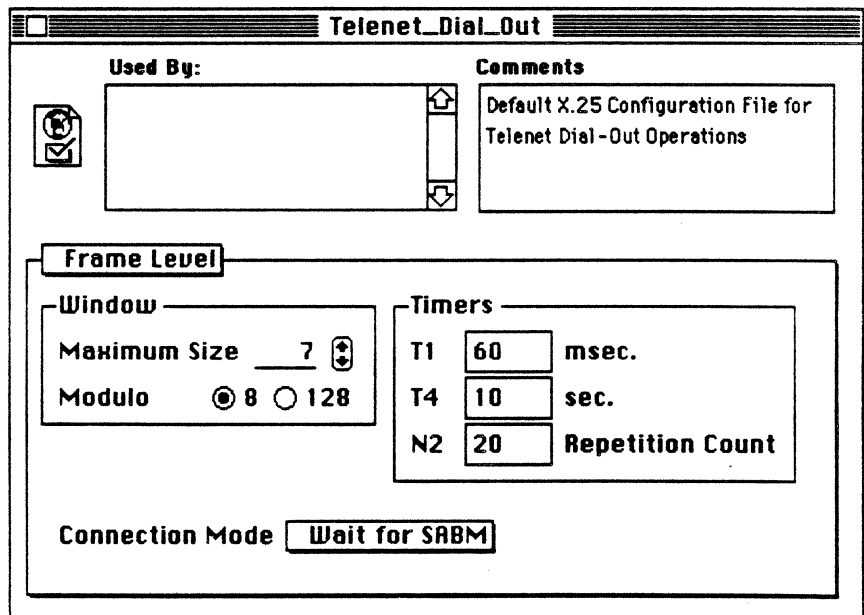1. **Select Timers from the pop-up menu under the parameter file icon, as *Figure 6-21* shows.**

■ **Figure 6-21**   Choosing the Timers parameter group

```
┌─────────────────────────┐
│ Addressing              │
│ Charging                │
│ Channel Allocation      │
│ Frame Level             │
│ Packet & Window Size    │
├─────────────────────────┤
│ ✓Timers                 │
└─────────────────────────┘
```
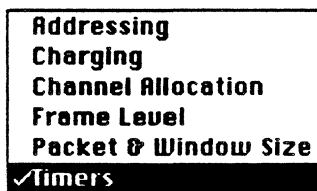
MacX25 Admin displays the Timers parameter group, as *Figure 6-22* shows.

■ **Figure 6-22**   The Timers parameter group

2. **Set the value of the T20 timer, if needed.**

   The T20 timer specifies how many seconds after the MacX25 server sends a restart request that it waits for a restart confirmation or indication before sending another restart request.

3. **Set the value of the T21 timer, if needed.**

   The T21 timer specifies how many seconds after sending a call request that the MacX25 server waits for a call connected, clear indication, or incoming call before the MacX25 server sends a clear packet.

4. **Set the value of the T22 timer, if needed.**

   The T22 timer indicates how many seconds after sending a reset request that the MacX25 server waits for a reset confirmation or reset indication before retransmitting the reset request packet.

5. Set the value of the T23 timer, if needed.

The T23 timer determines the number of seconds after the MacX25 server sends a clear request that it waits for a clear confirmation or clear indication before it retransmits the clear request packet.

6. Set the value of the T24 timer, if needed.

The T24 timer sets the number of seconds after sending an acknowledgment that the MacX25 server waits before it sends a Receiver Ready (RR) packet.

7. Set the value of the T25 timer, if needed.

The T25 timer specifies the number of seconds after sending a data packet that the MacX25 server waits for an acknowledgment before resetting the virtual circuit.

8. Set the value of the T26 timer, if needed.

The T26 timer indicates how many seconds after the MacX25 server sends an interrupt packet that it waits for the interrupt confirmation before resetting the virtual circuit.

9. Set the value of the T28 timer, if needed.

The T28 timer indicates the number of seconds after sending a registration packet that the MacX25 server waits for a confirmation before it resends the registration packet.

Undoing changes to a parameter file

You can use the Revert command in the File menu, as *Figure 6-23* illustrates, to undo the changes that you have made to a parameter file since the last save.

You cannot use the Revert command to undo changes that you made prior to saving the file.

■ **Figure 6-23** Choosing Revert from the File menu

```
┌─────────────────────────────────┐
│ File                            │
├─────────────────────────────────┤
│ Open Parameter File...    ⌘O   │
│ Close                     ⌘W   │
│ Save                      ⌘S   │
│ Save As...                      │
├─────────────────────────────────┤
│ Revert                          │
├─────────────────────────────────┤
│ Open Master Address Book...     │
├─────────────────────────────────┤
│ Show Log                        │
│ Change Admin Key                │
├─────────────────────────────────┤
│ Quit Admin                ⌘Q   │
└─────────────────────────────────┘
```

Saving changes to a parameter file

To maintain the integrity of the parameter files that the MacX25 product provides, you must save your changes to a new parameter file.

To save your new settings, follow these instructions:

1. **Choose Save As from the File menu, as *Figure 6-24* illustrates.**

■ **Figure 6-24**   Choosing Save As from the File menu

File
Open Parameter File... ⌘O
Close ⌘W
Saue ⌘S
Saue As...
Reuert
Open Master Address Book...
Show Log
Change Admin Key
Quit Admin ⌘Q

Notice that the Save command is dimmed in *Figure 6-24.*

MacX25 Admin displays the dialog box that *Figure 6-25* shows.

■ **Figure 6-25**   Naming the new parameter file

Saue H.25 Parameter File

Apple_DCE_to_DTE	
Apple_DTE_to_DCE	**Saue**
DCE Telenet	
DTE Telenet	**Cancel**
GEIS_45xx	
Telenet Dial Out	

Saue as:

Telenet_Dial_Out
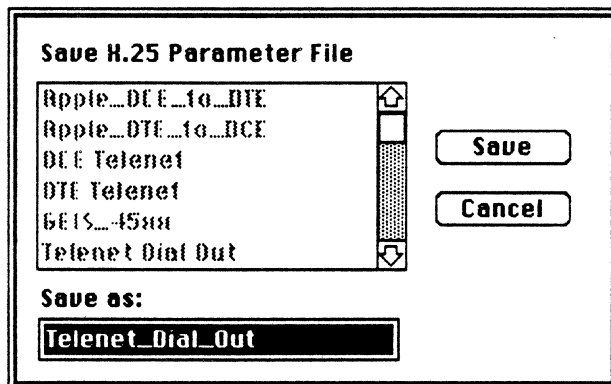
2. .Type the name that you want for your new parameter file, and click Save.

The name you enter can have up to 31 characters and must be unique to the MacX25 Folder. You cannot use a colon (:) character within a filename.

Closing the parameter file

When you want to put away the parameter file that you are viewing, you can either click on the close box in the upper-left corner of the parameter file window or you can choose Close from the File menu. *Figure 6-26* shows the File menu with the Close command highlighted.

■ **Figure 6-26**   Closing a parameter file

File	
Open Parameter File...	⌘O
Close	⌘W
Save	⌘S
Save As...	
Revert	
Open Master Address Book...	
Show Log	
Change Admin Key	
Quit Admin	⌘Q

Building a Master Address Book

W ITH MACX25 ADMIN, YOU CAN BUILD AND MAINTAIN A MASTER ADDRESS Book for the MacX25 users. The Master Address Book contains the connection information that a MacX25 user needs to connect to a MacX25 server and to place or receive an X.25 call.

MacX25 Admin uses the Open Book application to create the Master Address Book and to display its contents to you.

This chapter contains instructions for putting information into the Master Address Book and for making changes to the information.

You must put MacX25 Admin into its administration mode to open the Master Address Book. *Chapter 3* contains instructions for putting MacX25 Admin into administration mode.

Understanding MacX25 address files

This section tells you about MacX25 address files, and describes the information that an address file contains. You may find this information helpful when you are working with the Master Address Book.

Open Book

The Open Book program displays information from an addresses file.

You use Open Book to build a new addresses file and to view, add to, and edit the contents of an existing addresses file.

Although Open Book is a stand-alone application that you can open from your desktop, Open Book also allows other programs to use it. For example, MacX25 Admin provides a command that uses Open Book. The MacPAD program, which is included in the MacX25 User software, uses Open Book to display connection choices to a MacX25 user when the user sets up a MacPAD connection.

Address files

Open Book creates two address files for MacX25, the Master Address Book and the Addresses file.

When MacX25 Admin uses Open Book, Open Book displays information from its Master Address Book. Each MacX25 gateway in your AppleTalk network system has its own Master Address Book.

MacX25 users can use the Chooser to connect to a MacX25 server and to copy information from the Master Address Book to a local Addresses file that resides in the System Folder of the user's Macintosh.

If any program other than MacX25 Admin uses Open Book, or if you launch the Open Book program from your desktop, Open Book displays information from the Addresses file.

△ **Important** Do not remove the Master Address Book from the MacX25 Folder or the Addresses file from the System Folder of your hard disk. Open Book only looks for the Master Address Book in the MacX25 Folder. Open Book only looks for the Addresses file in the System folder. △

The Open Book program provides a command for creating new address files and for opening other address files that you create. When you create a new address file, you can give it any name you choose

What an address file contains

An address file contains entries. Each entry has an **entry name** and two **records**. The records contain the information that a program, like MacPAD, needs to connect to a MacX25 server and place a call to, or receive a call from, a host computer connected to the packet-switched data network that the MacX25 server supports.

The MacX25 records are **X.25 Server** and **X.25 Connection**.

The X.25 Server record contains the name and zone of a MacX25 server in the AppleTalk network.

The X.25 Connection record contains either the X.25 network address of the host, so MacPAD can place a call to that host; or it contains specifications that make it possible for the MacX25 server to receive an X.25 call from the host. The data in this record must conform to the CCITT recommendations for technical content and format.

Opening the Master Address Book

To open the Master Address Book, follow this instruction:

Choose Open Master Address Book from MacX25 Admin's File menu, as Figure 7-1 shows.

■ **Figure 7-1**   The Open Book dialog box

```
┌──────────────────────────────────┐
│ File                             │
├──────────────────────────────────┤
│ Open Parameter File...       ⌘O  │
│ Close                        ⌘W  │
│ Save                         ⌘S  │
│ Save As...                       │
│ Revert                           │
├──────────────────────────────────┤
│ Open Master Address Book...      │
├──────────────────────────────────┤
│ Show Log                         │
│ Change Admin Key                 │
├──────────────────────────────────┤
│ Quit Admin                   ⌘Q  │
└──────────────────────────────────┘
```

If you are opening the Master Address Book for the first time, Open Book creates the file and displays the empty dialog box that *Figure 7-2* shows. If you have previously opened the Master Address Book and added entries to it, the list of entries appears in the upper-left list box of the dialog box.

■ **Figure 7-2**   The Open Book dialog box
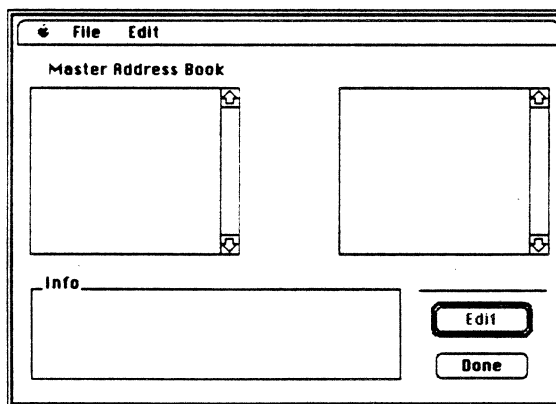
Because you cannot use the menus at the top of your screen when you are using Open Book, Open Book provides its own menu bar for editing entries and records in the Master Address Book, and for gaining access to other address files, if you have any available to you.

The box in the upper-left portion of the dialog box is empty because you have not yet added any entries to Master Address Book. The information box usually contains a brief description of a selected item. Because the Master Address Book is empty, the information box is also empty.

When you place your cursor on a menu, command, or button and hold your mouse button down, the information box contains a description of the control.

Adding entries to the Master Address Book

To add new entries to the Master Address Book, follow these steps:

1. **Choose New Entry from Open Book's Edit menu.**

   Figure 7-3 shows Open Book's Edit menu with the New Entry command highlighted.

■ **Figure 7-3**   Choosing New Entry from Open Book's Edit menu
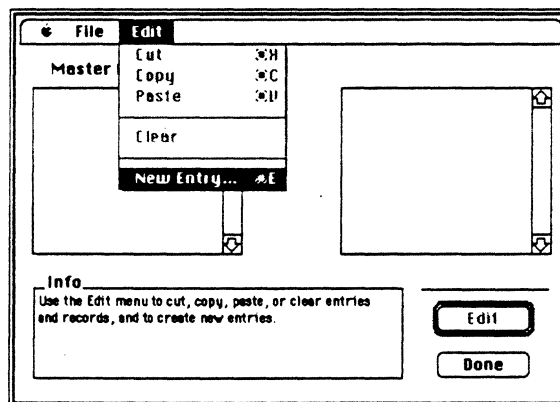
Figure 7-4 shows how the Open Book dialog box appears after you choose New Entry from the Edit menu.

■ **Figure 7-4**   Naming the new entry
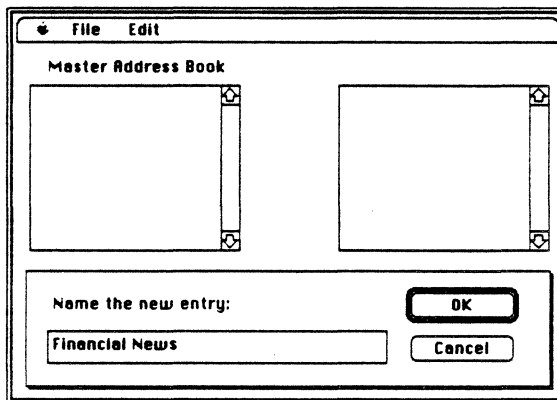
2. **Type the name that you wish to give the new entry.**

The name should identify the service to which the MacX25 user connects when the user selects this entry.

3. **Click OK.**

The new entry now appears in the upper-left list box. The upper-right list box shows the X.25 Connection and X.25 Server records. A pencil icon precedes each record. The pencil icon indicates that you can view and modify the information in the record.

Figure 7-5 with the Open Book dialog box with one entry. The entry's records are empty.

■ **Figure 7-5**   A new entry with no information in its records
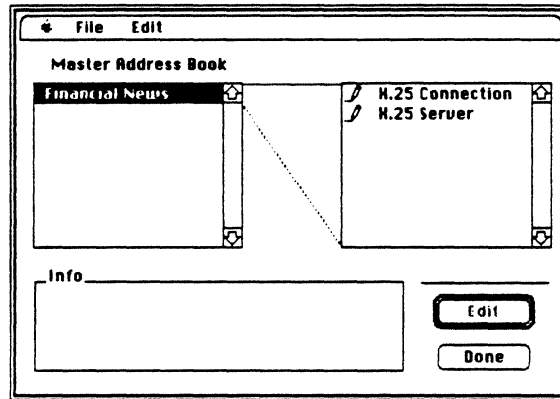

```
 File   Edit

Master Address Book

 Financial News    ⬆        ⬇ H.25 Connection   ⬆
                             ⬇ H.25 Server

                    ⬇                          ⬇

 Info
                                              ( Edit )

                                              ( Done )
```

Putting information into the X.25 Connection record

To put information into the X.25 Connection record, follow these steps:

1. **Select the X.25 Connection record, as *Figure* 7-6 shows.**

■ **Figure 7-6**   Selecting the X.25 Connection record


```
 File   Edit

Master Address Book

 Financial News    ⬆        ▓ H.25 Connection  ⬆
                             ⬇ H.25 Server

                    ⬇                          ⬇

 Info
 Use "X.25 Connection" to edit X.25 addresses in ASCII
 format.                                      ( Edit )

                                              ( Done )
```
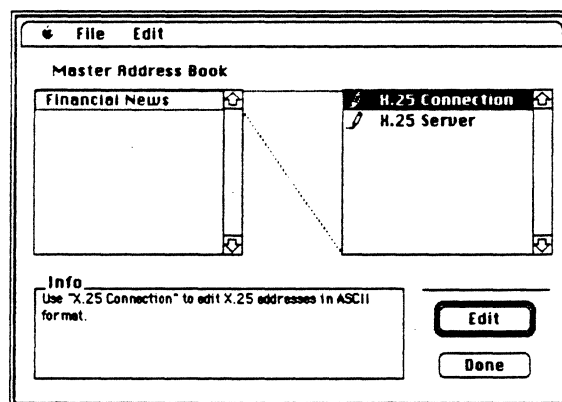
2. Click Edit.

Open Book displays the dialog box that *Figure* 7-7 shows.

■ **Figure 7-7**   The empty X.25 Connection record

```
┌─────────────────────────────────────┐
│  ┌───────────────────────────────┐   │
│  │      X.25 Connection Record   │   │
│  │  ┌─────────────────────────┐  │   │
│  │  │                         │  │   │
│  │  │                         │  │   │
│  │  │                         │  │   │
│  │  │                         │  │   │
│  │  │                         │  │   │
│  │  │                         │  │   │
│  │  └─────────────────────────┘  │   │
│  │  ──────────────────────────   │   │
│  │  ┌──────────┐                 │   │
│  │  │  Revert  │                 │   │
│  │  └──────────┘                 │   │
│  │  ┌──────────┐  ┌───────────┐  │   │
│  │  │  Cancel  │  │   Save    │  │   │
│  │  └──────────┘  └───────────┘  │   │
│  └───────────────────────────────┘   │
└─────────────────────────────────────┘
```
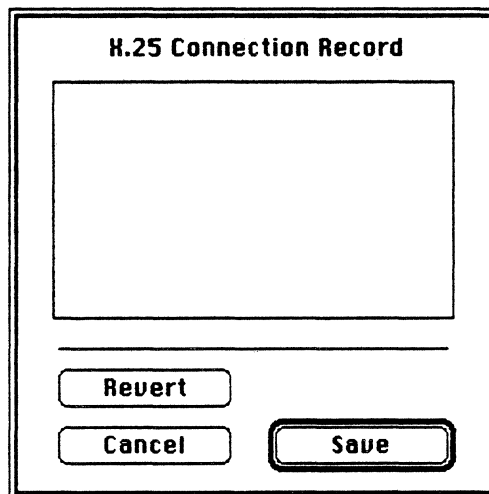
3. Type the full X.25 network address of the host, as *Figure* 7-8 demonstrates.

Do not put a "c" in front of the network address. MacPAD does this automatically when it uses the information in this record to make an X.25 call.

- **Figure 7-8**   Entering information into an X.25 Connection record
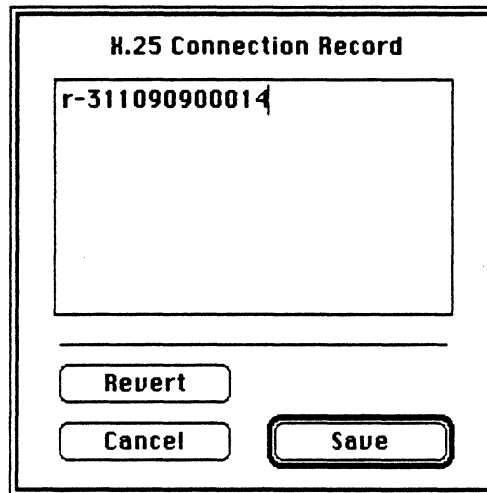
4. Click Save.

The X.25 Connection record is now preceded by both a pencil and a check mark, as *Figure 7-9* shows. The check mark indicates that the X.25 Connection record contains information.

- **Figure 7-9**   An X.25 Connection record that contains information
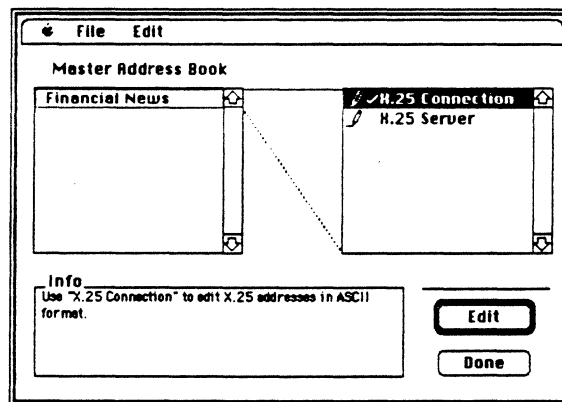
Putting information into the X.25 Server record

To put information into the X.25 Server record, follow these steps:

1. Click on the X.25 Server record as *Figure 7-10* shows.

■ **Figure 7-10**   Selecting the X.25 Server record
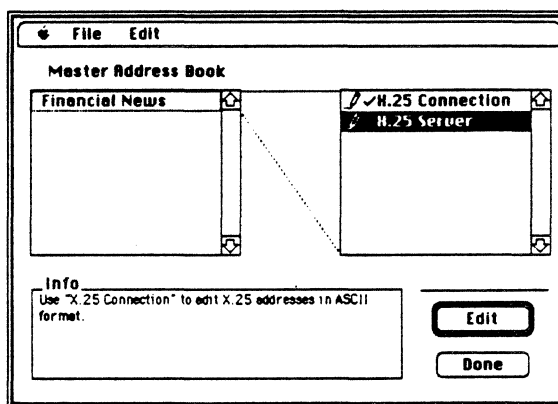
2 Click Edit.

The Address Book displays a dialog box like the one *Figure 7-11* shows.

■ **Figure 7-11** Putting information into an X.25 Server record
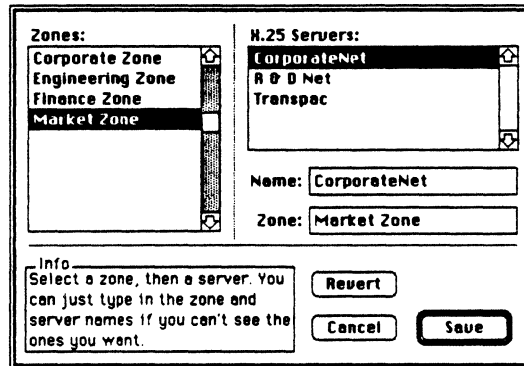

```
┌─────────────────────────────────────────────────────────┐
│  Zones:                  │  H.25 Servers:                │
│  ┌─────────────────────┐ │  ┌──────────────────────────┐ │
│  │Corporate Zone      ⬆│ │  │CorporateNet            ⬆│ │
│  │Engineering Zone    ▒│ │  │R & D Net               │ │
│  │Finance Zone        ▒│ │  │Transpac                │ │
│  │Market Zone         ▒│ │  │                        ▼│ │
│  │                    ▒│ │  └──────────────────────────┘ │
│  │                    ▒│ │                               │
│  │                    ▒│ │  Name: ┌──────────────────┐   │
│  │                    ▒│ │        │CorporateNet      │   │
│  │                    ⬇│ │  Zone: ┌──────────────────┐   │
│  └─────────────────────┘ │        │Market Zone       │   │
│ ┌─Info────────────────────────┐  ┌──────────┐           │
│ │Select a zone, then a server. You│  │ Revert │           │
│ │can just type in the zone and    │  └──────────┘           │
│ │server names if you can't see the│  ┌──────────┐ ┌──────┐ │
│ │ones you want.                   │  │ Cancel │ │ Save │ │
│ └─────────────────────────────┘  └──────────┘ └──────┘ │
└─────────────────────────────────────────────────────────┘
```

3. **Select the AppleTalk zone to which your MacX25 gateway is connected from upper-left list box.**

   You can scroll through the list if you don't immediately see the zone you want. If the list does not contain the zone, you can type this information into the Zone text edit box.

4. **Select the MacX25 Server that supports connections to the host named in this entry from the upper-right list box.**

   You can scroll through this list if you don't immediately see the MacX25 server you want. Open Book only displays the server name if the server is started or busy; otherwise Open Book does not "see" the server.

   If you do not find the MacX25 server's name in the upper-right list box, you can type the name into the Server text edit box.

5. **Click Save.**

   If you do not want to save the information, you can click Revert or Cancel to undo the changes that you just made. If you click Revert, Open Book continues to display the record contents. If you click Cancel, Open Book closes the X.25 Server dialog box.

   The X.25 Server record is now preceded by both a pencil and a check mark, as *Figure 7-12* shows. The check marks indicate that both records contain information.

■ **Figure 7-12** An entry with information in both of its records
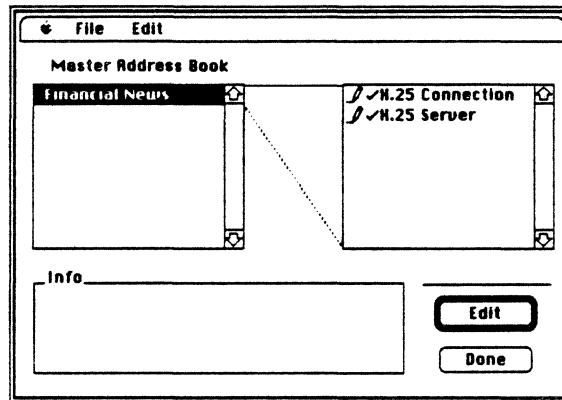
At this point, you can continue to work in your Master Address Book or you can quit the Open Book program. You do not lose any of the information in the Master Address Book when you quit Open Book.

Working with entries

You can use the Open Book Edit menu to cut, copy, paste, and clear entries.

Copying an entry

You normally copy an entry to paste it into another address file. To copy an entry, follow these steps:

1. **Select the entry that you want to copy.**

2. **Choose Copy from the Open Book Edit menu.**

   The Copy command includes the name of the selected entry. *Figure 7-13* shows Open Book's Edit menu with the Copy command highlighted.

■ **Figure 7-13**   Choosing Copy from Open Book's Edit menu
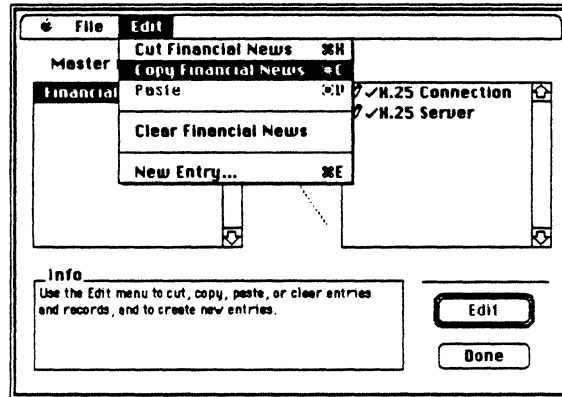
Open Book puts a copy of the entry with all of its record information onto your Clipboard, where it remains until your next cut or copy operation. The original entry remains intact in its current position in the Master Address Book.

When a copy of an entry resides on your Clipboard, you can use the Paste command under Open Book's Edit menu. You can find instructions for pasting an entry, and for opening another address file, in later sections of this chapter.

Cutting an entry

You normally cut entries to paste the entry in another address file. To cut an entry, follow these steps:

1. **Select the entry that you wish to cut.**

2. **Choose Cut from the Open Book's Edit menu.**

   The Cut command includes the name of the selected entry. *Figure 7-14* shows Open Book's Edit menu with the Cut command highlighted.
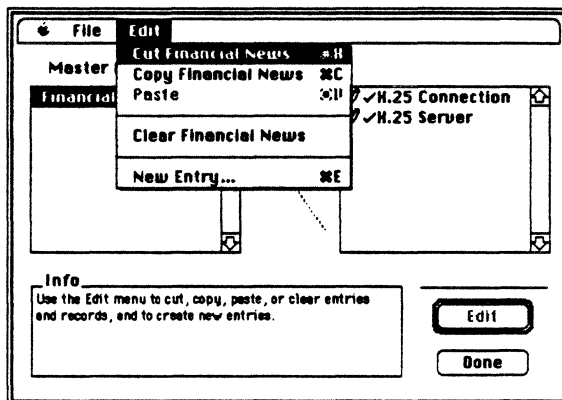
Open Book removes the entry name from the upper-left list box, and puts the entry with all of its information onto your Clipboard, where it remains until your next cut or copy operation.

When a cut entry resides on your Clipboard, you can use the Paste command under Open Book's Edit menu. You can find instructions for pasting an entry, and for opening another address file, in later sections of this chapter.

Pasting an entry

When an entry resides on your Clipboard, you can paste the entry into another address file. You can find instructions for opening another address file later in this chapter.

To paste an entry, follow these steps:

1. Choose Paste from the Open Book Edit menu.

The Paste command includes the name of the entry that you last cut or copied. *Figure 7-15* shows Open Book's Edit menu with the Paste command highlighted.

■ **Figure 7-15** Choosing Paste from Open Book's Edit menu
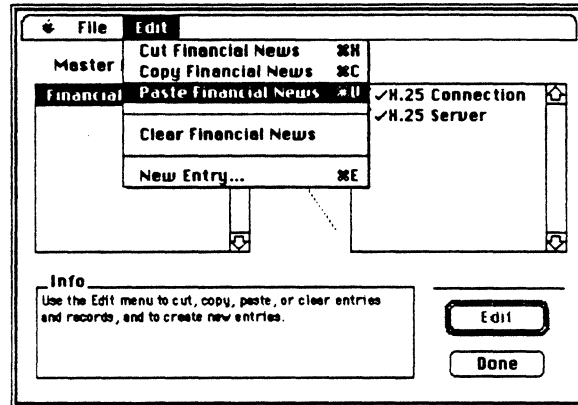
Open Book displays a dialog box like the one *Figure 7-16* shows. Open Book considers the entry on your Clipboard to be a new entry, and so it displays the New Entry text box in the lower portion of the dialog box.

■ **Figure 7-16** Pasting an entry
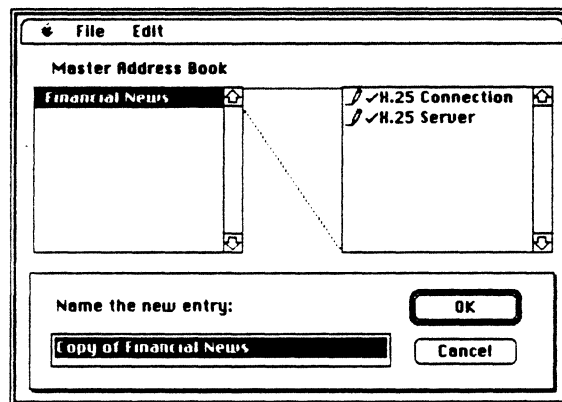
2. Type the name that you want to give the entry, and click OK.

If you want the entry to have the displayed name, you can click OK without typing anything.

The upper-left list box now contains the name you gave the entry in step 2. Open Book automatically puts the entry in alphabetical order in the list.

Clearing an entry

You can use the Clear command from the Edit menu to delete an entry from the Master Address Book.

To delete an entry, follow these steps:

1. Select the entry that you want to delete.

2. Choose Clear from Open Book's Edit menu.

The Clear command includes the name of the selected entry. *Figure 7-17* shows Open Book's Edit menu with the Clear command highlighted.

■ **Figure 7-17**   Choosing Clear from Open Book's Edit menu
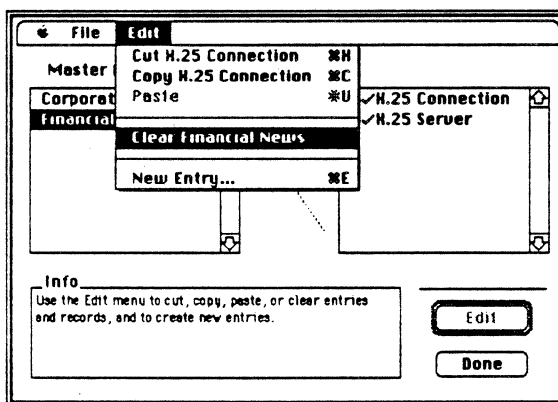
Open Book delets the selected entry from the Master Address Book and removes its name from the upper-left list box.

Working with records

You can also use the Open Book Edit menu to cut, copy, paste, and clear records.

Copying a record

You normally copy a record to paste it into another entry. To copy a record, follow these steps:

1. **Select the entry whose record you wish to copy.**

2. **Select the record that you want to copy, as *Figure 7-18* shows.**

■ **Figure 7-18**   Selecting a record to copy
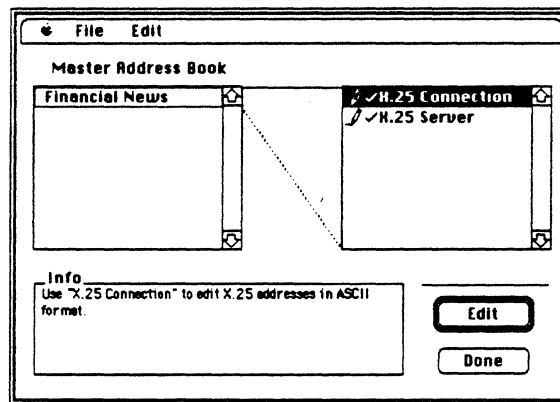
3. **Choose Copy from the Open Book Edit menu.**

   The Copy command includes the name of the record, as *Figure 7-19* shows.

■ **Figure 7-19**   Choosing the Copy command to copy a record
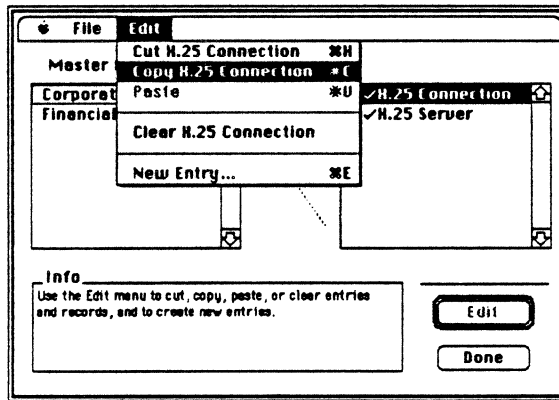
Open Book puts a copy of the information in the record onto your Clipboard, where it remains until your next cut or copy operation. The information in the copied record remains intact.

When a copy of a record resides on your Clipboard, you can use the Paste command under Open Book's Edit menu.

Cutting a record

You normally cut a record to move the information in the record from one entry to another entry. To cut a record, follow these steps:

1. **Select the entry whose record you wish to cut.**

2. **Select the record that you wish to cut.**

3. **Choose Cut from the Open Book's Edit menu.**

   The Cut command shows the name of the selected record.

   The program deletes the information in the record and puts the information onto your Clipboard, where it remains until your next cut or copy operation.

When record information resides on your Clipboard, you can use the Paste command under Open Book's Edit menu.

Pasting a record

When record information resides on your Clipboard, you can paste the information into the same record of another entry. To paste information from a cut or copied record, follow these steps:

1. Select the entry into which you want to paste the record.

2. Choose Paste from the Open Book Edit menu.

The Paste command includes the name of the record that you last cut or copied. *Figure* 7-20 shows Open Book's Edit menu with the Paste command highlighted.

❖ If the Paste command shows an entry name rather than a record, you may not have cut or copied the record. You must cut or copy the record of one entry before you can paste it into another entry.

■ **Figure 7-20** Choosing Paste after cutting or copying a record
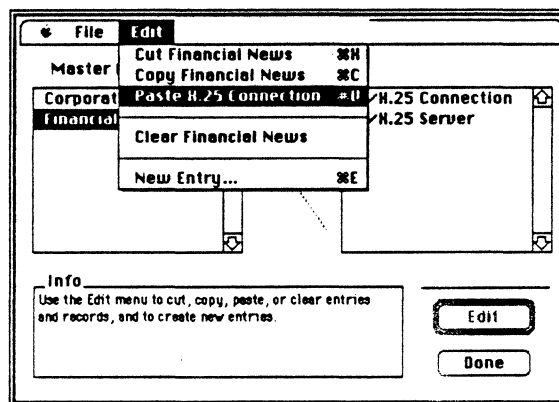
Open Book puts the record information in the Clipboard into the corresponding record of the selected entry. Any information previously in the record is destroyed.

Clearing a record

You can use the Clear command from the Edit menu to delete a the information in the record. To clear the contents of a record, follow these steps:

1. **Select the entry whose record you wish to clear.**

2. **Select the record whose information you wish to delete.**

3. **Choose Clear from Open Book's Edit menu.**

   The Clear command includes the name of the record.

   Open Book clears any information in the record, leaving the record empty. You can tell that the record is empty because no check mark precedes the record in upper-right list box.

Making changes to the information in records

You can modify the contents of a record in the same way that you initially put information into a record. This section describes how to modify the contents of the X.25 Connection and X.25 Server records.

Modifying the X.25 Connection record

To modify the X.25 Connection record, follow these steps:

1. **Select the entry whose record you wish to modify.**

2. **Double-click X.25 Connection.**

   Open Book displays the X.25 Connection information dialog box. *Figure 7-8*, which appears earlier in this chapter, shows this dialog box.

3. **Type the current X.25 network address of the host.**

Do not put a "c" in front of the network address. MacPAD does this automatically when it uses the information in this record to make an X.25 call.

4. Click Save.

If you do not want to save the information, you can click Revert or Cancel to undo the changes that you just made. If you click Revert, Open Book continues to display the record contents. If you click Cancel, Open Book closes the X.25 Connection dialog box.

Modifying the X.25 Server record

To modify the contents of the X.25 Server record, follow these steps:

1. Select the entry whose record you wish to modify.

2. Double-click X.25 Server.

Open Book displays the X.25 Server information dialog box. *Figure 7-11*, which appears earlier in this chapter, shows this dialog box.

3. Select the AppleTalk zone to which the MacX25 gateway is connected from the upper-left list box.

You can scroll through this list if you don't immediately see the zone you want. If the list does not contain the zone, you can type this information into the Zone text edit box.

4. Select the MacX25 Server that supports connections to the host named in this entry from the upper-right list box.

You can scroll through this list if you don't immediately see the MacX25 server you want. If the list does not contain the MacX25 server's name, you can type this information into the Server text edit box.

5. Click Save.

If you do not want to save the information, you can click Revert or Cancel to undo the changes that you just made. If you click Revert, Open Book continues to display the X.25 Server information. If you click Cancel, Open Book closes the X.25 Server information dialog box.

Opening another address file

If you launch Open Book directly from your desktop, you can follow these instructions to display information from the Master Address Book rather than from the local Addresses file.

1. Choose Open from the File menu, as *Figure 7-21* shows.

- **Figure 7-21**   Choosing Open from Open Book's File menu
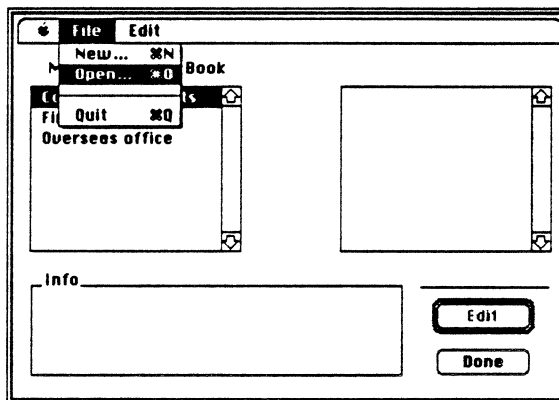
The program displays the dialog box that *Figure 7-22* illustrates. The shadow box above the list box contains the name of the folder that you are currently viewing, which is your System Folder in this case.

- **Figure 7-22**   Selecting another address file
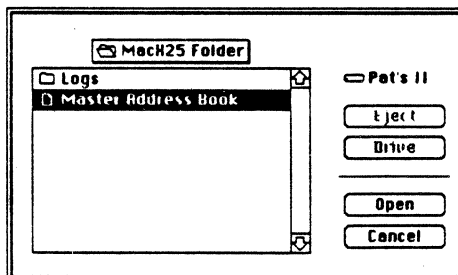
2. **Use the pop-up menu above the list box to select your hard disk.**

   Open Book displays the list of files and folders at the top level of your hard disk.

3. **Locate the MacX25 Folder.**

   The MacX25 Folder can reside anywhere on the hard disk of the Macintosh.

4. **Open the MacX25 Folder by double-clicking its name.**

5. **Open the Master Address Book by double-clicking its name.**

   Open Book displays the entries from the Master Address Book.

Creating another address file

You can create another address file at any time by following these instructions:

1. **Choose New from Open Book's File menu, as *Figure 7-23* shows.**

■ **Figure 7-23**   Choosing New from Open Book's File menu
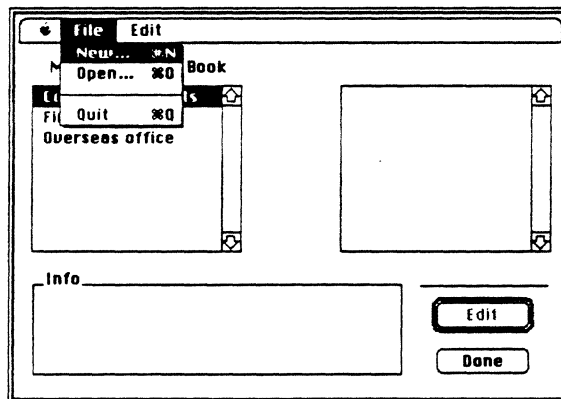
The program displays a text box in which you can enter a filename. The text box appears in the lower portion of the Open Book dialog box, as *Figure 7-24* shows.

■ **Figure 7-24**   Naming a new address file

```
┌─────────────────────────────────────┐
│  ┌──────────────┐                    │
│  │ 🖿 MacH25 Folder │                  │
│  ├──────────────────┬─┐  ⊂⊃ Pat's II  │
│  │🖿 Another gateway │◇│              │
│  │🖿 Apple_DCE_to_DTE│ │  ┌────────┐  │
│  │🖿 Apple_DTE_to_DCE│▓│  │ Eject  │  │
│  │🖿 DCE Telenet    │▓│  └────────┘  │
│  │🖿 DTE Telenet    │▓│  ┌────────┐  │
│  │🖿 GEIS_45xx      │◇│  │ Drive  │  │
│  ├──────────────────┴─┘  └────────┘  │
│  │ Create new book:      ┌────────┐  │
│  │ ┌──────────────────┐  │  Save  │  │
│  │ │Addresses         │  └────────┘  │
│  │ └──────────────────┘  ┌────────┐  │
│  │                       │ Cancel │  │
│  │                       └────────┘  │
└─────────────────────────────────────┘
```
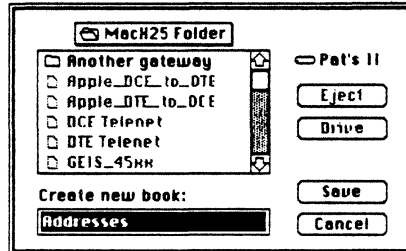
2. **Type the name that you want to give to the new address file.**

3. **Click OK.**

Open Book creates the new file and displays it to you. The filename appears above the list box in the upper-left portion of the dialog box. The list box is empty because you have not added any entries to it.

Quitting Open Book

When you finish working in the Master Address Book, follow this instruction to quit Open Book and return to MacX25 Admin:

Click Done.

You do not lose any of the information in the Master Address Book when you quit Open Book.

Viewing MacX25 Gateway Activity

A FTER YOU HAVE USED MACX25 ADMIN TO CREATE A MACX25 SERVER, TO SET
user access privileges, and to put entries into the Master Address Book, you
can use MacX25 Admin's information mode to view activity on the MacX25
gateway.

This chapter tells you how to use MacX25 Admin's information mode to
view the activity on your MacX25 gateway. The chapter also includes
instructions for launching MacX25 Admin after the MacX25 Servers and
MacX25 Users files are created.

Launching MacX25 Admin

To launch MacX25 Admin after the MacX25 Servers and MacX25 Users files are created, follow these instructions:

1. Locate the MacX25 Folder on your hard disk.

The MacX25 Folder can reside anywhere on your hard disk, so you may need to look for it. You may find it convenient to put this folder at the top level of your hard disk or directly on your desktop.

2. Open the MacX25 Folder by double-clicking its icon.

The system displays the contents of the MacX25 Folder.

3. Double click the MacX25 Admin icon to launch the application.

❖ If you have MacX25 servers set for automatic startup, you can override the automatic startup operations by holding down the command key as you launch the program.

The MacX25 Admin and MacX25 Log windows now appear on your screen.

The MacX25 Admin and MacX25 Log windows contain information about your MacX25 gateway. The next two sections of this chapter describe how to use these two informational windows.

How to use the MacX25 Admin window

The MacX25 Admin window contains information about the current use of the MacX25 gateway.

Viewing the MacX25 Admin window

The MacX25 Admin window has a picture of the Macintosh NuBus slots, a Servers list box, and a Users list box. *Figure 8-1* shows how this window may appear.

■ **Figure 8-1**   A Sample MacX25 Admin window
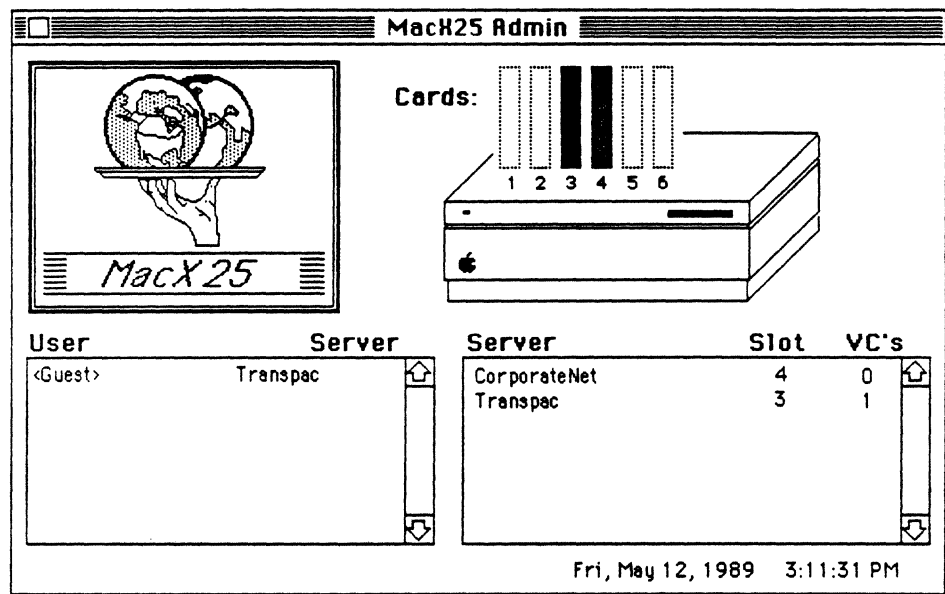
Determining slot conditions

By the way a slot appears in the MacX25 Admin window, you can tell whether or not the slot contains an Apple Serial card, and you can tell the current state of the MacX25 software on a slot that does contain an Apple Serial Card. *Figure 8-2* shows how each possible slot condition is represented in the MacX25 Admin window. These are the same slot representations that appear in a Server Information window, as *Chapter 4* describes.

■ **Figure 8-2**   Possible slot conditions
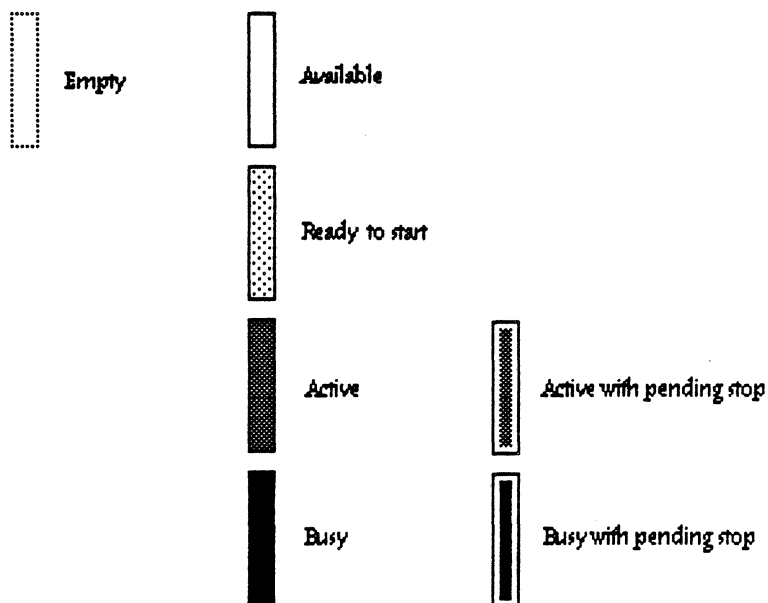
In *Figure 8-1*, only slots 3 and 4 have Apple Serial cards; slot 3 is running MacX25, and is supporting one user connection; and slot 4 is running MacX25, but has no virtual circuits.

Viewing user activity

The user list box in the MacX25 Admin window shows the registered MacX25 users that currently have virtual circuits, and indicates the MacX25 server that is supporting each user's connection. In *Figure 8-1*, one Guest user has a connection through the Transpac server.

Viewing server activity

The server list box in the MacX25 Admin window lists all of the servers that are saved, identifies the slot to which the server is assigned, and indicates the number of current connections through the server. *Figure 8-1* shows a MacX25 server that is out of service. A server that is out of service is not assigned to any slot on the MacX25 gateway.

Displaying the MacX25 Admin window

If you are running MacX25 Admin under MultiFinder, you may want the MacX25 Admin window to disappear from your screen while you work with another program.

You can at any time put the MacX25 Admin window away while MacX25 Admin is still running by clicking the close box in the upper-left corner of the window.

When you want to display the MacX25 Admin window again, choose Show MacX25 Admin Window from the Special menu, as *Figure 8-3* shows.

■ **Figure 8-3**   Choosing Show MacX25 Admin Window from the Special menu

```
┌──────────────────────────────────────┐
│ Special                              │
├──────────────────────────────────────┤
│ Show MacH25 Admin Window             │
├──────────────────────────────────────┤
│ Administration...              ⌘A    │
└──────────────────────────────────────┘
```

How to use the MacX25 Admin Log window

The MacX25 Log window lists any events that occur while the program is running.

Viewing the log

The MacX25 Admin displays in the MacX25 Admin Log all of the events that occur while the program is running. *Figure 8-4* shows an example of how a MacX25 Admin Log window might appear after you add users to the gateway and start the servers.

■ **Figure 8-4** Sample MacX25 Admin Log window

```
▤☐▥▥▥▥▥▥▥▥▥▥ MacH25 Admin Log ▥▥▥▥▥▥▥▥▥▥▤▣▥
05/12/89 02:15:56 PM - MacX25 Admin Program Started.          ⬆
05/12/89 02:30:22 PM - User Joyce Clark Created
05/12/89 02:31:11 PM - User Andy Richard Created
05/12/89 02:32:22 PM - User Susan Wan Created
05/12/89 02:33:07 PM - User Barbara Spencer Created
05/12/89 02:34:07 PM - User Dave Robertson Created
05/12/89 02:34:34 PM - User Pat Johnson Created
05/12/89 02:34:37 PM - User Pat Johnson Modified
05/12/89 03:06:26 PM - CorporateNet Started.
05/12/89 03:07:52 PM - Transpac Started.
05/12/89 03:11:20 PM - User <Guest> Logged In Transpac


                                                              ⬇
◁☐▦▦▦▦▦▦▦▦▦▦▦▦▦▦▦▦▦▦▦▦▦▦▦▦▦▦▦▦▦▦▦▦▦▦▦▦▦▦◁▷▣
```

MacX25 Admin temporarily stores the events that it displays in the MacX25 Admin Log window in an area of computer memory that is large, but that does not grow. When MacX25 Admin fills the log storage area, the program begins writing new events over the oldest stored events.

When you quit the program, all events stored in temporary memory are lost.

You can save the contents of the MacX25 Admin Log window to a file, but only when MacX25 Admin is in its administration mode. You can find instructions for saving the contents of the MacX25 Admin Log window in *Chapter 3* of this guide.

Controlling the MacX25 Admin Log window display

If you are running MacX25 Admin under MultiFinder, you may want the MacX25 Admin Log window to disappear from your screen while you work with another program.

You can at any time put the MacX25 Admin Log window away while MacX25 Admin is still running by clicking the close box in the upper-left corner of the window.

When you want to display the MacX25 Admin Log window again, choose Show Log from the File menu, as *Figure 8-5* shows.

■ **Figure 8-5** .Choosing Show Log from the File menu

```
File
Show Log
Shutdown...  ⌘Q
```

MacX25 Stop windows

When you set a pending stop for a MacX25 server, MacX25 Admin displays a MacX25 Stop window until the stop occurs or you cancel the pending stop. *Figure 8-6* shows an example of a MacX25 Stop window.

■ **Figure 8-6**　A sample MacX25 Stop window

The text box shows the number of minutes that remain before MacX25 Admin will stop the server. If any users are connected to the server, MacX25 Admin periodically notifies them of the pending stop.

A separate MacX25 Stop window appears for each server with a pending stop. You cannot close a MacX25 Stop window without cancelling the stop; and you can cancel a stop only when MacX25 Admin is in administration mode.

Putting MacX25 Admin into administration mode

To put MacX25 Admin into its administration mode, follow these steps:

1. **Choose Administration from the Special menu.**

   Figure 8-7 illustrates this choice.

■ **Figure 8-7**   Choosing Administration from the Special menu

```
┌─────────────┐
│ Special     │
├─────────────────────────────────┐
│ Show MacH25 Admin Window        │
│ Administration...          ⌘A   │
└─────────────────────────────────┘
```

MacX25 Admin displays the dialog box that *Figure 8-8* shows.

■ **Figure 8-8**   Entering your Admin key
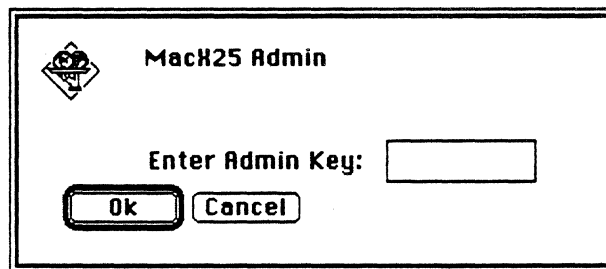
2. **Type your Admin key, and click OK.**

   If you entered an incorrect key, MacX25 Admin displays an error message. Click OK. Then type the correct Admin key, and click OK.

If the key you typed is correct, MacX25 Admin enters its administration mode. *Figure 8-9* shows how your screen may appear when you enter administration mode.

When you put MacX25 Admin into its administration mode, your screen changes in the following ways:

■ the MacX25 Admin window disappears from your display

■ the commands under the File menu change

■ the Special menu disappears

■ a Users menu and a Server menu appear in your menu bar

■ User List and Server List windows appear on your screen

The Server List window lists all the the MacX25 servers that you have saved, indicates the slot to which the server is assigned, and specifies the current state of the MacX25 software on the card. The User List window lists all of the registered MacX25 users. The MacX25 Admin Log shows that MacX25 Admin has entered administration mode.

You can find instructions for performing specific tasks in MacX25 Admin's administrative mode in *Chapters 3, 4, 5, 6,* and *7.*

■ **Figure 8-9**   MacX25 Admin's administration mode

```
┌─────────────────────────────────────────────────┐
│              MacH25 Server List                  │
├─────────────────────────────────────────────────┤
│   Name            Slot            State          │
├─────────────────────────────────────────────────┤
│  CorporateNet     4               Ready       ⬆  │
│  R & D Net        Not Assigned    Out Of Service │
│  Transpac         3               Ready       ⬇  │
└─────────────────────────────────────────────────┘
┌─────────────────────────────────────────────────┐
│              MacH25 User List                    │
├─────────────────────────────────────────────────┤
│   Name                                           │
├─────────────────────────────────────────────────┤
│   <Guest>                                        │
│   Andy Richard                                   │
│   Barbara Spencer                                │
│   Dave Robertson                                 │
│   Joyce Clark                                    │
│   Pat Johnson  ┌──────────────────────────────────────────┐
│   Susan Wan    │ □ ▤▤▤▤▤▤▤   MacH25 Admin Log   ▤▤▤▤▤ ⬚▤ │
└────────────────│ 05/12/89 02:15:56 PM - MacX25 Admin Program Started. ⬆│
                 │                                           │
                 │                                           │
                 │                                           │
                 │                                       ⬇  │
                 └──────────────────────────────────────────┘
```
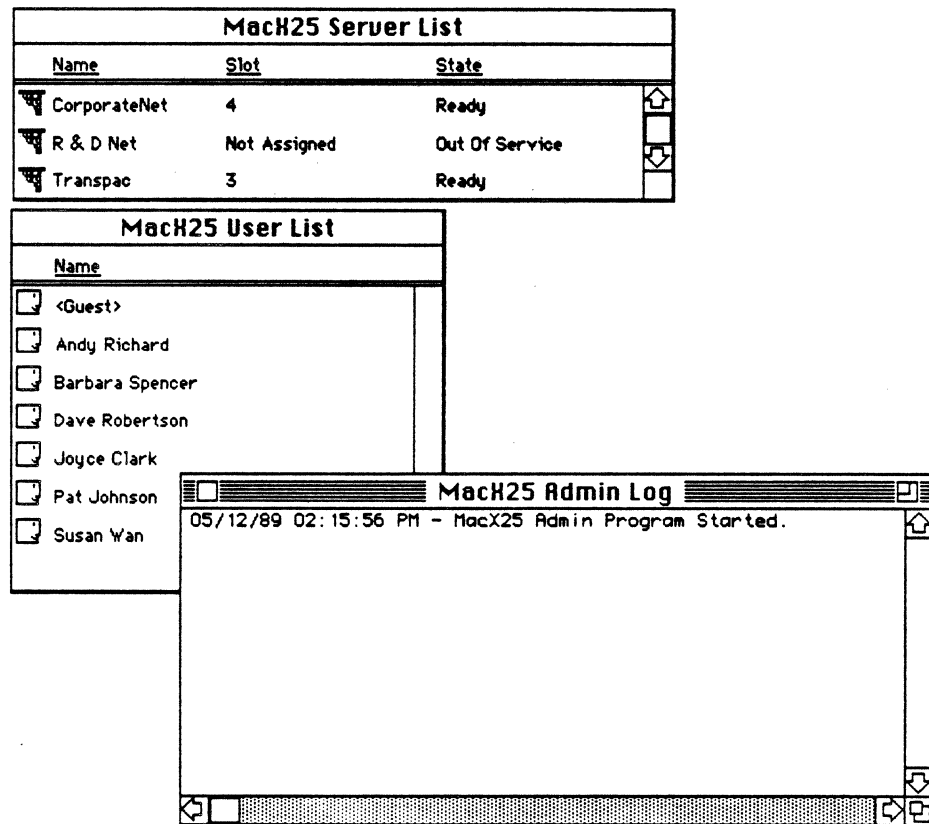
Quitting administration mode

To protect your gateway, you should always keep MacX25 Admin in its information mode when you are not performing administrative tasks.

To put MacX25 Admin into its information mode, choose Quit Admin from the File menu, as *Figure 8-10* illustrates.

■ **Figure 8-10**   Quitting administration mode

```
┌─────────────────────────────────┐
│ File                            │
├─────────────────────────────────┤
│ Open Parameter File...      ⌘O  │
│ Close                       ⌘W  │
│ Save                        ⌘S  │
│ Save As...                      │
│ Revert                          │
├─────────────────────────────────┤
│ Open Master Address Book...     │
├─────────────────────────────────┤
│ Show Log                        │
│ Change Admin Key                │
├─────────────────────────────────┤
│ Quit Admin                  ⌘Q  │
└─────────────────────────────────┘
```

Quitting MacX25 Admin

Because the MacX25 software runs only when MacX25 Admin is running, you should quit MacX25 Admin only when you must do so to perform a certain maintenance task, such as adding another serial card to the Macintosh, or upgrading the system.

MacX25 Admin provides the Quit command under the File menu, as *Figure 8-11* illustrates.

■ **Figure 8-11**   Quitting MacX25 Admin

```
┌──────────────────────┐
│ File                 │
├──────────────────────┤
│ Show Log             │
│ Shutdown...      ⌘Q  │
└──────────────────────┘
```

Functionality that MacX25 Supports

T HIS APPENDIX CONTAINS A TABLE THAT LISTS THE FUNCTIONALITY THAT THE
MacX25 product supports. The MacX25 Server software provides an X.25
communications program that provides some X.25 functions that the
MacX25 Admin program does not currently support. The MacX25 User
software provides the PAD functionality. In addition to these, Apple offers
a MacX25 Developer's Kit for third-party developers who wish to build
applications that use MacX25.

The General column of the table describes a function from the CCITT or the
International Standards Organization recommendations. The X.25 column
indicates whether the MacX25 software that runs on the Apple Serial NuBus
Card supports the function. The Admin column indicates whether MacX25
Admin supports the function. The PAD column specifies if MacPAD
supports the function. The Programmable column indicates whether the
MacX25 Developer's Kit supports the function.

■ **Table A-1**   MacX25 supported functionality

General	X.25	Admin	PAD	Programmable
CCITT 1976 Compatible Mode	Yes	No	No	No
CCITT 1980 Compatible Mode	Yes	Yes	No	Yes
CCITT 1984 Compatible Mode	Yes	Yes	Yes	Yes
CCITT 1988 Compatible Mode	No	No	No	Yes
Operation as a DTE	Yes	N/A	N/A	N/A
Operation as a DCE	Yes	N/A	N/A	N/A
X.32 Switched Circuit Operation				
At time of ICP card load				
DTE Call Placement	Yes	No	N/A	N/A
DTE Call Answering	No	No	N/A	N/A
Link Level XID Exchange	Yes	No	N/A	N/A
Dynamically				
DTE Call Placement	No	No	No	No
DTE Call Answering	No	No	No	No
Link Level XID Exchange	No	No	N/A	N/A
One X.25 Link per Livonia Card	Yes	Yes	N/A	N/A
Operation at 64 Kbps	Yes,	N/A	N/A	N/A
Two X.25 Links per Livonia Card	No	No	N/A	N/A
Operation at 2 x 9.6 Kbps	No	N/A	N/A	N/A
X.25 MultiLink Operation	No	No	N/A	N/A
Multiple X.25 Cards per Mac-II	Yes	Yes	N/A	N/A
Multiple Mac-II per A.T. Network	Yes	Yes	N/A	N/A

Subscription Registration

Annex A		
Permanent Virtual Circuits	Yes	No
Switched Virtual Circuits	Yes	Yes
One Way Incoming LIC / HIC	Yes	Yes
Two Way LTC / HTC	Yes	Yes
One Way Outgoing LOC / HOC	Yes	Yes
On-Line Facility Registration	Yes	No
On-Line Registration Prevention	Yes	No

■ **Table A-1** MacX25 supported functionality *(continued)*

General	X.25	Admin	PAD	Programmable
Extended Sequence Numbers	Yes	Yes		
D Bit Modification	Yes	No		
Packet Retransmission (DTE REJ)	No	No		
Default Packet Size Assignment	32 - 4096	32 - 4096	128	32 - 4096
Default Window Size Assignment	1 - 128	1 - 128		
Default Throughput Class Assignment	Yes	No		
Flow Control Parameter Negotiation	Yes	No		
Throughput Class Negotiation	Yes	No		
Closed User Groups				
CUG	Yes	Yes		
Multiple CUG Support	Yes	Yes		
CUG with Outgoing Access	Yes	Yes		
CUG with Incoming Access	Yes	Yes		
CUG with Incoming Barred	Yes	Yes		
CUG with Outgoing Barred	Yes	Yes		
Bilateral Closed User Groups				
BCUG	Yes	Yes		
Multiple BCUG Support	Yes	Yes		
BCUG with Outgoing Access	Yes	No		
Fast Select Acceptance	Yes	No		
Reverse Charging Acceptance	Yes	No		
Local Charging Prevention	Yes	Yes		
Network User Identification	No	No		
Charging Information	N/A	N/A		
RPOA Selection	N/A	N/A		
Hunt Group	N/A	N/A		
Call Redirection	N/A	N/A		

On-Line Registration

Startup				
D Bit Modification	No	No	No	No
Packet Retransmission	No	No	No	No
Extended Sequence Numbers	No	No	No	No

■ **Table A-1** MacX25 supported functionality *(continued)*

General	X.25	Admin	PAD	Programmable
Anytime				
Charging Information	Yes		No	Yes
Throughput Class Negotiation	Yes		No	Yes
Flow Control Parameter Negotiation	Yes		No	Yes
Reverse Charging Acceptance	Yes		No	Yes
Fast Select Acceptance	Yes		No	Yes
Outgoing Calls Barred	Yes		No	Yes
Incoming Calls Barred	Yes		No	Yes
Call Initiation	Yes		Yes	Yes
Packet Size Negotiation	Yes		No	Yes
Window Size Negotiation	Yes		No	Yes
Throughput Class Negotiation	Yes		No	Yes
CUG Group Specification	Yes		Yes	Yes
BCUG Group Specification	Yes		Yes	Yes
Fast Select	Yes		No	Yes
Reverse Charging	Yes		Yes	Yes
Network User Identification	Yes		No	Yes
Request Charging Information	Yes		No	Yes
RPOA Selection	Yes		Yes	Yes
Called Address Modified Notification	Yes		No	Yes
Transit Delay Selection	Yes		No	Yes
User Data Field	Yes		Yes	Yes
Annex G				
Calling Address Extension	Yes		No	Yes
Called Address Extension	Yes		No	Yes
Quality of Service Negotiation				
Min Throughput Class	Yes		No	Yes
End to End Transit Delay	Yes		No	Yes
Expedited Data Negotiation	Yes		No	Yes

■ **Table A-1** MacX25 supported functionality *(continued)*

General	X.25	Admin	PAD	Programmable
Call Reception	Yes		No	Yes
Packet Size Negotiation	Yes		N/A	Yes
Window Size Negotiation	Yes		N/A	Yes
Throughput Class Negotiation	Yes		N/A	Yes
CUG Group Specification	Yes		N/A	Yes
BCUG Group Specification	Yes		N/A	Yes
Fast Select Acceptance	Yes		N/A	Yes
Reverse Charging Acceptance	Yes		N/A	Yes
Network User Identification	Yes		N/A	Yes
Charging Information	Yes		N/A	Yes
Call Redirection Notification	Yes		N/A	Yes
Transit Delay Selection	Yes		N/A	Yes
User Data Field	Yes		N/A	Yes
Appendix G				
Calling Address Extension	Yes		N/A	Yes
Called Address Extension	Yes		N/A	Yes
Quality of Service Negotiation				
Min Throughput Class	Yes		N/A	Yes
End to End Transit Delay	Yes		N/A	Yes
Expedited Data Negotiation	Yes		N/A	Yes

Yes: Supported
No: Not Supported
+++"Subscription Parameter, no effect on either software support or testing"
N/A: "Not Applicable, No Effect"

Parameter Settings in the MacX25 Parameter Files

T HIS APPENDIX CONTAINS TABLES THAT LIST THE PARAMETER SETTINGS FOR each parameter file that the MacX25 product provides. You can use this information to determine the parameter file that best fits the X.25 requirements for your MacX25 server.

You may wish to bring this information with you when you negotiate your X.25 service requirements with the representatives from the packet-switched data network to which you subscribe.

■ Table B-1 Default DTE

Parameter	Display Value	User Configurable
Internal L2 Parameters		
Auto Start	No	
Max Rec Buffers	16	
Min Rec Buffers	4	
Min Free Buffers	10	
Min Free Buffers Timeout (msec)	500 msec	
FIFO FlowControl Limit	4	
Register with S.A.	No	
AutoCall		
ACU Mode	No ACU	
ACU Timer (sec)	0 sec	
Frame Level		
Clock Mode	External	
Transmission Speed	External	
LAP Mode	LAP-B	
Connection Type	DTE	Yes (1)
Connection Mode	Send SABM, Wait UA	Yes
Frame Level Modulo	8	Yes
Window Size	7	Yes
T1 Timer (msec)	3000 msec	Yes
T3 Timer (sec)	20 sec	
T4 Timer (sec)	10 sec	Yes
N2 Counter (max error re-xmit)	20	Yes
DCD Poll Timer (msec)	500 msec	
DCD Retry Counter	2	
XID P1 Timer (msec)	3000 msec	
XID C2 Counter	20	
Network Specific Options:		
Force all FRMR in FRMR state	No	
Force RR FRMR in FRMR state	No	
Ignore Commands with P/F Bit	No	
Disc Answer	No	
Disc Action	No	
Info Count Escape	Yes	
N2 Action	Yes	

■ **Table B-1 Default DTE** (*continued*)

Parameter	Display Value	User Configurable
Internal L3 Parameters		
Highest LCN (+1)		
PVC Table Offset		
Max Packet Size		2
Interface FlowWindow	2	
Packet Level		
Network DNIC	0	Yes
Network Specification	1984	
Connection Type	DTE	1
Packet Level Modulo	8	Yes
Default RX Window Size	2	Yes 4
Default TX Window Size	2	4
Max Negotiated RX Window Size	7	Yes 5
Max Negotiated TX Window Size	7	5
Default RX Packet Size	128	Yes 3
Default TX Packet Size	128	3
Max Negotiated RX Packet Size	4096	Yes 2
Max Negotiated TX Packet Size	4096	2
Lowest PVC Number	1	
Number of PVCs	0	
Lowest Incoming SVC Nbr	1	Yes
Number of Incoming SVCs	0	Yes
Lowest Two-Way SVC Nbr	1	Yes
Number of Two-Way SVCs	16	Yes
Lowest Outgoing SVC Nbr	17	Yes
Number of Outgoing SVCs	0	Yes
T20 Timer (sec) (Restart Request)	180 sec	Yes
T21 Timer (sec) (Call Request)	200 sec	Yes
T22 Timer (sec) (Reset Request)	180 sec	Yes
T23 Timer (sec) (Clear Request)	180 sec	Yes
T24 Timer (sec) (Window Status)	180 sec	Yes
T25 Timer (sec) (Window Rotation)	180 sec	Yes
T26 Timer (sec) (Interrupt Response)	180 sec	Yes
T28 Timer (sec) (Registration Request)	180 sec	Yes
R22 Counter (reset pkts)	5	
R23 (clear pkts)	5	
R28 counter (reg pkts)	5	

■ **Table B-1 Default DTE** *(continued)*

Parameter	Display Value	User Configurable
Packet Level *(continued)*		
Allow Registration	Yes	
Allow Throughput Negotiation	Yes	
Automatic Throughput Updating	Yes	
RX Default Throughput	9,600 bps	
TX Default Throughput	9,600 bps	
RX Maximum Throughput	48,000 bps	
TX Maximum Throughput	48,000 bps	
Forbid Incoming Calls	No	
Forbid Outgoing Calls	No	
Allow Reverse Charging	Yes	Yes
Forbid Local Charging	No	Yes
Allow Fast Select	Yes	
Allow D-Bit Usage	No	
CUG Subscription	Not Allowed	Yes
BCUG Subscription	Not Allowed	Yes
Send Restart Pkt on Link Reset	Yes ·	
DATAPAC Facility Checking	No	
Network Specific Options:		
Allow Data in Call Accept Packet	Yes	
Disable D-bit in Call Cong	Yes	
Clear Collision Retransmit	No	
Use Simple Timer Diag Codes	No	
Enforce CCITT Clear Formats	No	
Clear on unassigned LUN Pkt	No	
Send Reset on PVC Open	No	
User Notify on Clear/Reset	Yes	
Reserved #1	0	
Reserved #2	0	
Reserved #3	0	
Reserved #4	0	

■ Table B-2 Default DCE

Parameter	Display Value	User Configurable
Internal L2 Parameters		
Auto Start	No	
Max Rec Buffers	16	
Min Rec Buffers	4	
Min Free Buffers	10	
Min Free Buffers Timeout (msec)	500 msec	
FIFO FlowControl Limit	4	
Register with S.A.	No	
AutoCall		
ACU Mode	No ACU	
ACU Timer (sec)	0 sec	
Frame Level		
Clock Mode	External	
Transmission Speed	External	
LAP Mode	LAP-B	
Connection Type	DCE	Yes 1
Connection Mode	Wait SABM, Send UA	Yes
Frame Level Module	8	Yes
Window Size	7	Yes
T1 Timer (msec)	3000 msec	Yes
T3 Timer (sec)	20 sec	
T4 Timer (sec)	10 sec	Yes
N2 Counter (max error re-xmit)	20	Yes
DCD Poll Timer (msec)	500 msec	
DCD Retry Counter	2	
XID P1 Timer (msec)	3000 msec	
XID C2 Counter	20	
Network Specific Options:		
Force all FRMR in FRMR state	No	
Force RR FRMR in FRMR state	No	
Ignore Commands with P/F Bit	No	
Disc Answer	No	
Disc Action	No	
Info Count Escape	Yes	
N2 Action	Yes	

■ **Table B-2 Default DCE** (*continued*)

Parameter	Display Value	User Configurable	
Internal L3 Parameters			
Highest LCN (+1)			
PVC Table Offset			
Max Packet Size		2	
Interface FlowWindow	2		
Packet Level			
Network DNIC	0	Yes	
Network Specification	1984		
Connection Type	DCE	1	
Packet Level Modulo	8	Yes	
Default RX Window Size	2	Yes	4
Default TX Window Size	2		4
Max Negotiated RX Window Size	7	Yes	5
Max Negotiated TX Window Size	7		5
Default RX Packet Size	128	Yes	3
Default TX Packet Size	128		3
Max Negotiated RX Packet Size	4096	Yes	2
Max Negotiated TX Packet Size	4096		2
Lowest PVC Number	1		
Number of PVCs	0		
Lowest Incoming SVC Nbr	1	Yes	
Number of Incoming SVCs	0	Yes	
Lowest Two-Way SVC Nbr	1	Yes	
Number of Two-Way SVCs	16	Yes	
Lowest Outgoing SVC Nbr	17	Yes	
Number of Outgoing SVCs	0	Yes	
T20 Timer (sec) (Restart Request)	180 sec	Yes	
T21 Timer (sec) (Call Request)	200 sec	Yes	
T22 Timer (sec) (Reset Request)	180 sec	Yes	
T23 Timer (sec) (Clear Request)	180 sec	Yes	
T24 Timer (sec) (Window Status)	180 sec	Yes	
T25 Timer (sec) (Window Rotation)	180 sec	Yes	
T26 Timer (sec) (Interrupt Response)	180 sec	Yes	
T28 Timer (sec) (Registration Request)	180 sec	Yes	
R22 Counter (reset pkts)	5		
R23 (clear pkts)	5		
R28 counter (reg pkts)	5		

■ Table B-2 Default DCE (*continued*)

Parameter	Display Value	User Configurable
Packet Level *(continued)*		
Allow Registration	Yes	
Allow Throughput Negotiation	Yes	
Automatic Throughput Updating	Yes	
RX Default Throughput	9,600 bps	
TX Default Throughput	9,600 bps	
RX Maximum Throughput	48,000 bps	
TX Maximum Throughput	48,000 bps	
Forbid Incoming Calls	No	
Forbid Outgoing Calls	No	
Allow Reverse Charging	Yes	Yes
Forbid Local Charging	No	Yes
Allow Fast Select	Yes	
Allow D-Bit Usage	No	
CUG Subscription	Not Allowed	Yes
BCUG Subscription	Not Allowed	Yes
Send Restart Pkt on Link Reset	Yes	
DATAPAC Facility Checking	No	
Network Specific Options:		
Allow Data in Call Accept Packet	Yes	
Disable D-bit in Call Cong	Yes	
Clear Collision Retransmit	No	
Use Simple Timer Diag Codes	No	
Enforce CCITT Clear Formats	No	
Clear on unassigned LUN Pkt	No	
Send Reset on PVC Open	No	
User Notify on Clear/Reset	Yes	
Reserved #1	0	
Reserved #2	0	
Reserved #3	0	
Reserved #4	0	

▪ Table B-3 Telenet

Parameter	Display Value	User Configurable
Internal L2 Parameters		
Auto Start	No	
Max Rec Buffers	16	
Min Rec Buffers	4	
Min Free Buffers	10	
Min Free Buffers Timeout (msec)	500 msec	
FIFO FlowControl Limit	4	
Register with S.A.	No	
AutoCall		
ACU Mode	No ACU	
ACU Timer (sec)	0 sec	
Frame Level		
Clock Mode	External	
Transmission Speed	External	
LAP Mode	LAP-B	
Connection Type	DTE	Yes 1
Connection Mode	Wait SABM, Send UA	Yes
Frame Level Modulo	8	Yes
Window Size	7	Yes
T1 Timer (msec)	3000 msec	Yes
T3 Timer (sec)	20 sec	
T4 Timer (sec)	10 sec	Yes
N2 Counter (max error re-xmit)	80	Yes
DCD Poll Timer (msec)	500 msec	
DCD Retry Counter	2	
XID P1 Timer (msec)	3000 msec	
XID C2 Counter	20	
Network Specific Options:		
Force all FRMR in FRMR state	No	
Force RR FRMR in FRMR state	No	
Ignore Commands with P/F Bit	No	
Disc Answer	No	
Disc Action	No	
Info Count Escape	No	
N2 Action	No	

Parameter	Display Value	User Configurable
Internal L3 Parameters		
Highest LCN (+1)		
PVC Table Offset		
Max Packet Size		2
Interface FlowWindow	2	
Packet Level		
Network DNIC	3110	Yes
Network Specification	1984	
Connection Type	DTE	1
Packet Level Modulo	8	Yes
Default RX Window Size	2	Yes 4
Default TX Window Size	2	4
Max Negotiated RX Window Size	7	Yes 5
Max Negotiated TX Window Size	7	5
Default RX Packet Size	128	Yes 3
Default TX Packet Size	128	3
Max Negotiated RX Packet Size	1024	Yes 2
Max Negotiated TX Packet Size	1024	2
Lowest PVC Number	1	
Number of PVCs	0	
Lowest Incoming SVC Nbr	1	Yes
Number of Incoming SVCs	0	Yes
Lowest Two-Way SVC Nbr	1	Yes
Number of Two-Way SVCs	16	Yes
Lowest Outgoing SVC Nbr	17	Yes
Number of Outgoing SVCs	0	Yes
T20 Timer (sec) (Restart Request)	180 sec	Yes
T21 Timer (sec) (Call Request)	200 sec	Yes
T22 Timer (sec) (Reset Request)	180 sec	Yes
T23 Timer (sec) (Clear Request)	180 sec	Yes
T24 Timer (sec) (Window Status)	180 sec	Yes
T25 Timer (sec) (Window Rotation)	180 sec	Yes
T26 Timer (sec) (Interrupt Response)	180 sec	Yes
T28 Timer (sec) (Registration Request)	180 sec	Yes
R22 Counter (reset pkts)	5	
R23 (clear pkts)	5	
R28 counter (reg pkts)	5	

Parameter	Display Value	User Configurable
Packet Level *(continued)*		
Allow Registration	Yes	
Allow Throughput Negotiation	Yes	
Automatic Throughput Updating	Yes	
RX Default Throughput	9,600 bps	
TX Default Throughput	9,600 bps	
RX Maximum Throughput	48,000 bps	
TX Maximum Throughput	48,000 bps	
Forbid Incoming Calls	No	
Forbid Outgoing Calls	No	
Allow Reverse Charging	Yes	Yes
Forbid Local Charging	No	Yes
Allow Fast Select	No	
Allow D-Bit Usage	No	
CUG Subscription	Not Allowed	Yes
BCUG Subscription	Not Allowed	Yes
Send Restart Pkt on Link Reset	No	
DATAPAC Facility Checking	No	
Network Specific Options:		
Allow Data in Call Accept Packet	Yes	
Disable D-bit in Call Cong	Yes	
Clear Collision Retransmit	No	
Use Simple Timer Diag Codes	No	
Enforce CCITT Clear Formats	No	
Clear on unassigned LUN Pkt	No	
Send Reset on PVC Open	No	
User Notify on Clear/Reset	Yes	
Reserved #1	0	
Reserved #2	0	
Reserved #3	0	
Reserved #4	0	

■ Table B-4 TRANSPAC

Parameter	Display Value	User Configurable
Internal L2 Parameters		
Auto Start	No	
Max Rec Buffers	16	
Min Rec Buffers	4	
Min Free Buffers	10	
Min Free Buffers Timeout (msec)	500 msec	
FIFO FlowControl Limit	4	
Register with S.A.	No	
AutoCall		
ACU Mode	No ACU	
ACU Timer (sec)	0 sec	
Frame Level		
Clock Mode	External	
Transmission Speed	External	
LAP Mode	LAP-B	
Connection Type	DTE	Yes 1
Connection Mode	Send SABM, Wait UA	Yes
Frame Level Modulo	8	Yes
Window Size	7	Yes
T1 Timer (msec)	1600 msec	Yes
T3 Timer (sec)	20 sec	
T4 Timer (sec)	10 sec	Yes
N2 Counter (max error re-xmit)	20	Yes
DCD Poll Timer (msec)	500 msec	
DCD Retry Counter	2	
XID P1 Timer (msec)	3000 msec	
XID C2 Counter	20	
Network Specific Options:		
Force all FRMR in FRMR state	Yes	
Force RR FRMR in FRMR state	No	
Ignore Commands with P/F Bit	No	
Disc Answer	No	
Disc Action	No	
Info Count Escape	No	
N2 Action	No	

MacX25 Parameters

T HIS APPENDIX CONTAINS A BRIEF DESCRIPTION OF EACH PARAMETER DISPLAYED
by the MacX25 Admin program when you open a parameter file. The
appendix contains a section for each parameter group. Within each section,
you can find information about each parameter that you can set within that
parameter group.

These descriptions are brief. If you need more information about a specific
parameter, you can contact a representative of the packet-switched data
network to which you subscribe, or you can refer to the *CCITT*
Recommendation X.25 or the International Standards Organization's (ISO)
recommendations.

Addressing parameters

Line type

X.25 communications are between data terminal equipment (DTE) and data communications equipment (DCE). The MacX25 server acts as a DTE or as a DCE, depending on how you set this parameter.

Network ID

The first four digits of the Network ID uniquely identifies the packet-switched data network. For example, the four-digit ID for Telenet is 3110 hexadecimal (hex).

The remaining digits uniquely identify the MacX25 server on the packet-switched data network. The network vendor assigns this address and uses it to deliver packets to the MacX25 server.

User groups

Many X.25 network vendors offer closed user group (CUG) and bilateral closed user group subscriptions.

Closed User Group (CUG)

packet-switched data network vendors provide a variety of closed user group subscriptions, which include:

- no closed user groups allowed
- closed user group with incoming and outgoing access without preferential
- closed user group with outgoing access without preferential
- closed user group incoming access without preferential
- closed user group with incoming and outgoing access with preferential
- closed user group with outgoing access with preferential
- closed user group with incoming access with preferential
- closed user group with preferential

When a user belongs to a closed user group, the user can only place X.25 calls to or receive X.25 calls from other members of the same group, depending on the type of subscription that you have.

The MacX25 product supports all of these closed user group options.

Bilateral Closed User Group (BCUG)

A binary closed user group is a special type of closed user group that allows only two members. The MacX25 product supports bilateral closed user groups.

Channel Allocation parameters

A logical channel number (LCN) is a value that uniquely identifies each virtual circuit on the X.25 link.

When the MacX25 server acts as the DTE, the MacX25 server assigns the LCN for each call that originates from one of its MacX25 users. When the MacX25 server acts as the DCE, it assigns the LCN for each call to a MacX25 user that originates at the remote end.

MacX25 Admin allows you to allocate up to 64 logical channel numbers (LCNs) among the three types of channels that MacX25 supports. The MacX25 product supports:

- outgoing channels

- two-way channels

- incoming channels

The MacX25 server's Channel Allocation settings must match the channel allocation settings that the network uses. MacX25 Admin does not allow you to overlap the range of any two channel types or to specify a range out of the required order.

Outgoing channels

An outgoing channel is a channel on the X.25 link that the MacX25 server uses for calls that originate locally and that cannot receive incoming data from the remote end of the connection.

Outgoing channels require the highest logical channel numbers that the MacX25 server uses.

Two-way channels

A two-way channel is a channel on the X.25 link that the MacX25 server uses for calls that can originate from either the local or the remote end of the connection and that can send and receive data.

Two-way channels must have logical channel numbers that are lower than the LCNs used by the outgoing channels and that are higher than the LCNs used by the incoming channels.

Incoming channels

An incoming channel is a channel on the X.25 link that the MacX25 server uses for calls that originate from the remote end of the connection and that cannot send data to the remote end of the connection.

Incoming channels must have logical channel numbers (LCNs) that are lower than the LCNs used by the two-way channels.

Permanent virtual circuit (PVC) channels

A permanent virtual circuit (PVC) channel is a channel on the X.25 link that is permanently assigned and that remains connected at all times.

Because MacX25 Admin does not support permanent virtual circuits, you cannot allocate any PVC channels.

Charging options

MacX25 Admin provides options to allow reverse charging and to prevent local charging.

Allow Reverse Charging

When you select Allow Reverse Charging , a MacX25 user can make a connection and bill the call to the destination host.

Prevent Local Charging

When you select Prevent Local Charging, a remote caller cannot make a connection to a MacX25 user and charge the call to the MacX25 server.

Frame Level parameters

The Frame Level parameter group contains parameters that affect how the MacX25 server handles operations at the frame level. Frame Level parameters include window settings, frame level timer settings, and a connection mode specification.

You can find information on all of the Frame Level parameters except T4 in the *CCITT Recommendation X.25*, also known as the *Redbook.* The International Standards Organization (ISO) defines the T4 timer.

Window settings

MacX25 Admin allows you to specify the Maximum Size window and the Modulo that the MacX25 frame level software uses. These parameters appear in the Window box in the Frame Level parameter group.

Maximum Size

The Maximum Size parameter sets the maximum number of frames that the server can send or receive without acknowledgment.

If the MacX25 server's frame level software uses Modulo 8, you can set the maximum window size to any value from 1 through 7. If the MacX25 server's frame level software uses Modulo 128, you can set the maximum window size to any value from 1 through 127.

Modulo

The Modulo parameter specifies the numbering system that the MacX25 server's frame level software uses. MacX25 Admin supports both the Modulo 8 and Modulo 128 numbering schemes.

Connection Modes

MacX25 supports two connection modes, Wait for SABM and Send SABM. A SABM is a type of packet that the local and remote X.25 frame level software exchanges to establish a new virtual circuit.

Send SABM

If the network expects the MacX25 server to send the SABM, you must set the MacX25 server's Connection Mode parameter to Send SABM.

Wait for SABM

If the network sends the SABM, you must set the MacX25 server's Connection Mode parameter to Wait for SABM. `

Timers

The Frame Level parameter group includes a Timers box that contains the T1, T4, and N2 parameter settings.

T1

The T1 parameter indicates the number of 50 millisecond units that occur before the MacX25 server retransmits a frame. For example, if you enter 60 in the text edit box for this parameter, you are specifying 3000 milliseconds, or 3 seconds.

T4

The T4 parameter specifies how many seconds the MacX25 server waits for an event to occur on the line before the MacX25 server sends a Receiver Ready (RR) frame to the network. You can disable this timer by setting its value to zero.

N2

The N2 parameter specifies the maximum number of times that the MacX25 server can retransmit a frame under error conditions before the MacX25 server resets the link.

Packet and Window Size parameters

The Packet and Window Size parameter group contains parameters that affect how the MacX25 server handles operations at the packet level. You and your network vendor must agree to these settings when you subscribe to the network.

Packet length

The Packet and Window Size parameter group contains a Packet box that contains Default Length and Maximum Length parameter settings.

Default Length

The Default Length parameter specifies the packet length that the MacX25 server normally uses.

You can choose a default packet length of 32, 64, 128, 256, 512, 1024, 2048, or 4096. The Maximum Length parameter setting affects Default Length setting that you can choose. For example, you cannot choose a Default Length that is larger than the Maximum Length.

MacX25 Admin uses a pop-up menu to display the Default Length options to you. MacX25 Admin dims any options in the menu that you cannot choose.

Maximum Length

The Maximum Length parameter specifies the largest packet length that the MacX25 server can send or receive .

You can set the Maximum Length to 32, 64, 128, 256, 512, 1024, 2048, or 4096. The Default Length parameter setting affects Maximum Length setting that you can choose. For example, you cannot choose a Maximum Length that is smaller than the Default Length.

MacX25 Admin uses a pop-up menu to display Maximum Length options to you. MacX25 Admin dims any options in the menu that you cannot choose.

Window settings

The Packet and Window Size parameter group includes a Window box that shows the settings of the Default Size, Maximum Size, and Modulo parameters.

The MacX25 server uses the window parameters to determine the number of packets that the MacX25 server can send to, or receive from, the network without confirmation.

Default Size

The default size parameter specifies the window size that the MacX25 server uses when it does not negotiate a window size with the network.

If the MacX25 server uses Modulo 8, you can set the Default Size parameter to any value from 1 through 7. If the MacX25 server uses Modulo 128, you can set the Default Size to any value from 1 through 127.

The Maximum Size parameter setting also affects Default Size setting that you can specify. For example, you cannot specify a maximum window size that is smaller than the default window size.

Maximum Size

The Maximum Size parameter specifies the largest window size that the MacX25 server can use.

If the MacX25 server uses Modulo 8, you can set the maximum window size to any value from 1 through 7. If the MacX25 server uses Modulo 128, you can set the maximum window size to any value from 1 through 127.

The Default Size parameter setting also affects Maximum Size setting that you can specify. For example, you cannot specify a maximum window size that is smaller than the default window size.

Modulo

The Modulo parameter specifies the numbering system that the MacX25 server's packet level software uses. MacX25 Admin supports both the Modulo 8 and Modulo 128 numbering schemes.

Timers

The Timers parameter group displays the current settings for the T20, T21, T22, T23, T24, T25, T26, and T28 packet-level timers. You should negotiate these values with your network vendor before setting them in the MacX25 parameter file

You can find information on the T20, T21, T22, T23, and T28 timers in the *CCITT Recommendation X.25*, also known as the *Redbook*. The International Standards Organization (ISO) defines the T24, T25, and T26 timers.

T20

The T20 timer specifies how many seconds after the MacX25 server sends a restart request that it waits for a restart confirmation or indication before sending another restart request.

T21

The T21 timer specifies how many seconds after sending a call request that the MacX25 server waits for a call connected, clear indication, or incoming call before the MacX25 server sends a clear packet.

T22

The T22 timer indicates how many seconds after sending a reset request that the MacX25 server waits for a reset confirmation or reset indication before retransmitting the reset request packet.

T23

The T23 timer determines the number of seconds after the MacX25 server sends a clear request that it waits for a clear confirmation or clear indication before it retransmits the clear request packet.

T24

The T24 timer sets the number of seconds after sending an acknowledgment that the MacX25 server waits before it sends a Receiver Ready (RR) packet.

T25

The T25 timer specifies the number of seconds after sending a data packet that the MacX25 server waits for an acknowledgment before resetting the virtual circuit.

T26

The T26 timer indicates how many seconds after the MacX25 server sends an interrupt packet that it waits for the interrupt confirmation before resetting the virtual circuit.

T28

The T28 timer indicates the number of seconds after sending a registration packet that the MacX25 server waits for a confirmation before it resends the registration packet.

Messages that May Appear in the Log

T HIS APPENDIX CONTAINS A TABLE THAT LISTS THE MESSAGES THAT MAY
appear in the MacX25 Log window. The table shows the message and, if the
situation requires you to perform an action, indicates what you should do.

What appears in the log	What you should do
Messages about the MacX25 Admin program or its files	
MacX25 Admin Program Started.	
Begin administration session.	
End administration session.	
X25 protocol stack file "<filename>" not found.	Quit MacX25 Admin. Check for file. (See Chapter 2).
No X.25 cards installed.	Quit MacX25 Admin. Install card. (See Chapter 2).
No Apple IPC installed.	Quit MacX25 Admin. Check for file. (See Chapter 2).
Out of MRDOS message buffers. Fatal Condition.	Restart the Macintosh.
Server Agent not available.	Quit MacX25 Admin. Check for file. (See Chapter 2).
Messages about a MacX25 Server	
"<Server name>" Started.	
"<Server name>" Stopped.	
Server "<Server name>" Created.	
Server "<Server name>" Modified.	
Server "<Server name>" Deleted.	
Server "<Server name>" Shutdown. User "<User name>" Logged Out.	
Server "<Server name>" <number> minute shutdown warning sent to <number> users.	
Server "<Server name>" shutdown canceled.	
Attempt to start "<Server name>" failed.	Start server again
Server "<Server name>" start cancelled.	
Server Claim Server mStatus = <status code>.	
Server "<Server name>" access status request received, respond with accessBits = <hex value>.	
X.25 download error <error code>.	Start server again.
Get MacX25 MRDOS TID failure.	Start server again
X.25 IPC communications lost. Link table download failed.	Start server again

■ **Table D-1** MacX25 Admin log messages *(continued)*

What appears in the log	What you should do

Messages about a MacX25 Server *(continued)*

X.25 IPC communications lost. Server start message failed.   Start server again
Send client note mStatus = <status code>.
X.25 IPC communications lost. Server stop message failed.
X.25 IPC communications lost. Claim Server message failed.
X.25 IPC communications lost. Quit Claim Server message failed.

Server Quit Claim Server mStatus = <status code>.   Start server again
X.25 IPC communications with Server Agent lost.   Start server again
Death Notice received for "<Server name>", not in service.   Start server again
Death Notice received for "<Server name>".   Start server again

Messages about a MacX25 User

User "<User name>" Logged In <Server name>.
User "<User name>" Logged Out <Server name>.   ˌ
Logout Attempt Failed: No user with vcid =<ID of virtual circuit>.
User "<User name>" Created.
User "<User name>" Modified.

User "<User name>" Deleted.
User "<User name>" changed password.
User "<User name>" changed password attempt failed.

Messages about the Master Address Book

Address Book 'Get List' request.
Address Book 'Get Entry' request.

■ **Table D-1** MacX25 Admin log messages *(continued)*

What appears in the log	What you should do
Messages about a MacX25 parameter file	
Parameter file: "<Parameter filename>" not found.	Select a new file for server, or quit MacX25 Admin.and check for file (Chapter 2).
<Parameter filename> Parameters opened.	
<Parameter filename> Parameters modified and saved.	
<Parameter filename> Parameters file created.	
<Parameter filename> Parameters file closed.	
Unsupportable configuration(<hexadecimal value>). System Table Download Failure.	Contact Apple.
Messages about a connection	
Login Attempt Failed. User "<User name>" does not have access to Server "<Server name>".	
Login Attempt Failed. User "<User name>" invalid password.	
Login Attempt Failed. Server "<Server name>" unknown.	
Login Attempt Failed. User "<User name>" unknown.	
Validation Attempt Failed. Server "<Server name>" unknown.	
Validation Attempt Failed. User <User name> unknown.	
Users <User name> virtual circuit (<ID of virtual circuit>) unknown. User logged out.	

<Server name>   - the name of the server appears here.
<User name>   - the name of the user appears here.
<Parameter filename>   - the name of the Parameter file appears here.
<ID of virtual circuit>   - the value that identifies the virtual circuit appears here.
<<hexadecimal value>>   - a hexadecimal number appears here.
<status code>   - a program status code appears here.
<number>   - a decimal number appears here.

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MacX25 server status and slot conditions

T HIS APPENDIX SHOWS HOW MACX25 ADMIN REPRESENTS SERVER STATUS AND slot conditions.

Although slot condition and MacX25 server status are related, the condition of a slot may not exactly reflect the status of a MacX25 server, and vice-versa.
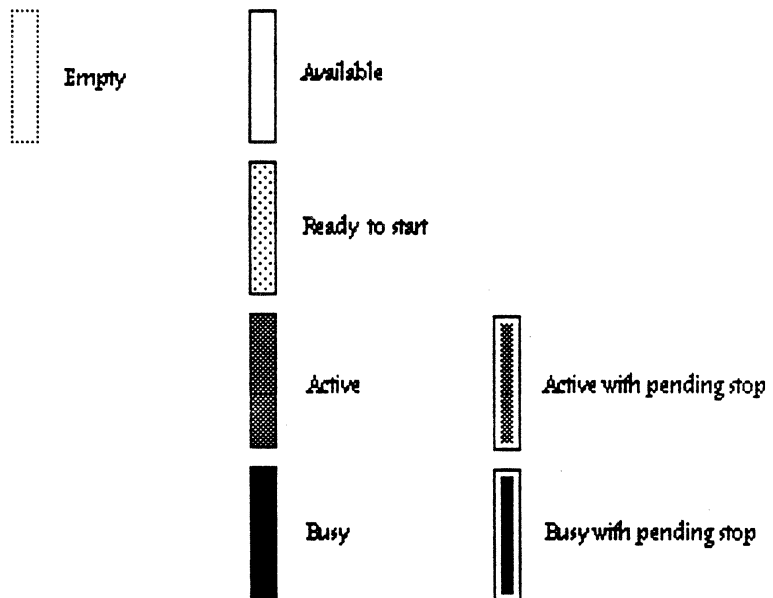
For example, you can save a MacX25 Server information window without assigning the server to any slot in the Macintosh. As another example, a slot appears Ready to Start when you select the slot. The status of the MacX25 server is Ready, however, only after you save the information.

MacX25 slot conditions

MacX25 Admin makes uses a picture to represent the NuBus slots in the Macintosh gateway, and to show the condition of each slot. The slot picture appears in each Server information window that you display on your screen when you are working in MacX25 Admin's administration mode. The same slot picture appears in the MacX25 Admin window when the program is in its information mode.

By the way a slot appears , you can tell whether or not the slot contains an Apple Serial card, and you can tell the current state of the MacX25 software on a slot that does contain an Apple Serial Card. Figure E-1 shows how MacX25 Admin represents each possible slot condition.

■ **Figure E-1**   MacX25 slot conditions

Empty

Available

Ready to start

Active   Active with pending stop

Busy   Busy with pending stop

MacX25 server status

Server status information appears in the MacX25 Server List window when you are working in administration mode. When MacX25 Admin is in information mode, the Servers list box in the MacX25 Admin window shows the state of the server

■ **Table E-1** MacX25 server states

Server state	Associated slot condition
Out Of Service	Not assigned (to a slot)
Ready	Ready to start
Started	Active
Signals High	Active
Active	Active
Active, Stop[<stop setting>]	Active with pending stop
Busy(<number>)	Busy
Busy(<number>),Stop[<stop setting>]	Busy with pending stop

<stop setting> - the number of minutes set for the stop appears here.
<number>　　- the number of virtual circuits that the MacX25 server is currently supporting appears here.

Glossary

active connection: A successful line of communication between points.

Active: The status of the MacX25 server after you have started the server and when no users have X.25 connections on that MacX25 server.

address file: A file that the Open Book application creates.

Addresses: The file that Open Book automatically creates and displays when you launch the Open Book application from your desktop or when certain programs. like MacPAD or Chooser, use Open Book.

administration mode: The way you use MacX25 Admin when you are making changes to the MacX25 gateway. To put MacX25 Admin into administration mode, you must type an admin key. Compare with information mode.

ADSP: Macintosh software that implements the AppleTalk Data Stream Protocol.

American Standard Code for Information Interchange (ASCII): A system for representing the keyboard characters, control characters, and certain graphics elements as numeric values.

Apple IPC: Software that handles communications between the Macintosh and the software running on the Apple Serial NuBus Card.

Apple Serial NuBus Card: An intelligent communications card for the Macintosh II family computer. Some of the MacX25 Server software runs on this card.

AppleShare: Macintosh software that allows Macintosh users on an AppleTalk network system to share files and programs by viewing and copying files that reside on an AppleShare file server.

AppleTalk Data Stream Protocol: A connection-oriented protocol that provides in-order delivery of data on an AppleTalk internet.

AppleTalk network system: The system of network software and hardware used in various implementations of Apple's communications network.

AppleTalk network: See AppleTalk network system.

AppleTalk zone: A subset of the networks within an internet. Zones within an AppleTalk internet are joined by internet routers.

application or application program: A program written for some specific purpose, such as word processing, database management, graphics, or telecommunication.

ASCII: See American Standard Code for Information Interchange.

Auto Start check box: In MacX25 Admin, an item on the MacX25 server information window that allows you to specify whether MacX25 Admin automatically starts the MacX25 server when you launch MacX25 Admin program.

Available: In MacX25 Admin, a condition of the NuBus slot on the Macintosh computer. When a slot is available, you can assign a MacX25 server to run on the Apple Serial NuBus Card that resides in that slot.

back up: (v.) To make a spare copy of a disk or of a file.
backup: (n.) A copy of a disk or file.

background: A program operates "in the background" if it continues to function, automatically, while you use another program.

BCD: See binary code decimal.

BCUG: See bilateral closed user group.

bilateral closed user group: A subscription service that many X.25 network vendors offer. A bilateral closed user group is a special type of closed user group that allows only two members. The MacX25 product supports bilateral closed user groups.

binary code decimal:

binary: The representation of numbers and other characters in the base-2 system, using only the two digits 0 and 1.

break signal: A keystroke available on the keyboard of some terminals and personal computers. This key is not available on the Macintosh keyboards.

Busy: The status of the MacX25 server after you have started the server and users have X.25 connections on that MacX25 server. This status includes the number of connections. For example, Busy(2) indicates that the MacX25 server has two connections.

CCITT: See Consultative Committee on International Telegraphy and Telephony.

choose: To pick a command by dragging the cursor through the menu. You often choose a command after you have selected something on which the program will execute the command.

Chooser document: A file that contains information that the Chooser desk accessory uses to display options to you.

Chooser: A desk accessory that is normally installed with LaserWriter®, LaserWriter Plus, and Imagewriter® printer software. This desk accessory can also be expanded by adding other chooser documents, such as AppleShare and X.25. The Chooser displays icons from each chooser document. When you select a printer icon, you can choose the printer that you want to use. When you select the X.25 icon, you can choose a MacX25 server to use for X.25 connections.

click: To select something from a program display by putting your cursor on the item and then pressing and releasing your mouse button once.

Clipboard: The holding place for the item you last cut or copied.

closed user group: A subscription service that many X.25 network vendors offer. When a user belongs to a closed user group, the user can only place X.25 calls to or receive X.25 calls from other members of the same group. The MacX25 product supports closed user groups.

Communications Toolbox: Macintosh system software that supports multiple types of connections, terminals, and file transfer methods. The Macintosh system version 6.03 and later includes the Communications Toolbox as part of the System file, and provides a Communications folder with several connection tools, terminal tools, and file transfer tools. MacPAD is a connection tool for the Communications Toolbox.

configure: A catch-all term for many tasks on a computer or network. "To configure a program" means to choose options for the program's standard features. "To configure a connection" means to choose the type of connection you want to make, the host or program to which you want to connect, and the parameter settings that allow your Macintosh to talk to the remote destination.

connection maintenance: Any action that affects the current state of a connection.

connection method: A type of connection. The Communications Toolbox allows you to choose from several connection methods, such as serial (through a phone line using a modem) or MacPAD (through an X.25 link using a MacX25 server).

connection tool: A program that handles a particular type of connection and that uses the Communications Toolbox to display this connection option to you.

connector port: A hardware receptacle into which you can plug a cable connector. The Macintosh is equipped with serial and SCSI ports. Some communications cards for the Macintosh II family, such as the Apple Serial NuBus Card, have a connector port for connecting specialized cables to the card.

Consultative Committee on International Telegraphy and Telephony (CCITT): An organization, based in Geneva, Switzerland, which recommends international standards for communications.

Control Panel device file: A file that contains information that the Control Panel desk accessory uses to display options to you.

control character: On ProDOS and MS-DOS computers, a nonprinting character that controls or modifies the way information is printed or displayed. Control characters are typed by holding down the Control key while pressing some other key. In the Macintosh family, the Command key performs a similar function.

control function: A command that you issue by pressing one or more keys on your keyboard.

CUG: See closed user group.

current startup disk: The disk that contains the system files that the computer is currently using. The startup disk icon is usually in the upper-right corner of the desktop.

data communications equipment (DCE): A device or program that performs one end of the communications on an X.25 link. Normally, a network computer acts as the DCE. Compare with data terminal equipment (DTE). A MacX25 server can act as a DCE or as a DTE on the X.25 link.

data network ID code:

data terminal equipment (DTE): A device or program that performs one end of the communications on an X.25 link. Normally, a user's terminal or personal computer acts as the DTE. Compare with data communications equipment (DCE). A MacX25 server can act as a DTE or as a DCE on the X.25 link.

DCE: See data communications equipment.

desk accessories: "Mini-applications" that are available from the menu regardless of which application you are using.

desktop: The Macintosh computer's working environment; the menu bar and the gray area on the screen. You can have a number of documents on the desktop at the same time. At the Finder level, the desktop displays the Trash icon, the icons of disks, and the windows of any files or programs that you have opened.

dial-up connection: A type of connection which you accomplish by connecting the Apple Serial NuBus Card to a modem, starting the MacX25 server, and then dialing the telephone number of a network computer.

dialog box: A box that a Macintosh application displays and that contains one or more items (such as buttons or pop-up menus) that you can use to perform actions.

disk drive: The mechanism that holds a disk, retrieves information from it, and saves information to it. A hard disk drive has the disk permanently encased. A 3.5-inch disk drive requires that you insert a 3.5-inch disk.

double-click: To select something from a program display by putting your cursor on the item and then pressing and releasing your mouse button twice in quick succession without moving the mouse. This usually selects the item and opens it.

DTE: See data terminal equipment.

Empty: In MacX25 Admin, a condition of the NuBus slot on the Macintosh computer. When a slot is empty, the slot does not have an Apple Serial NuBus Card installed in it.

entry: A record from an address file. An entry contains the name of a host, which you see in Open Book's upper-left list box, and two records with information that a program, like MacPAD, needs to establish a connection to that host. Open Book provides an Edit button that you can use to view the information in the records of an entry.

file transfer method: A specific procedure for transferring files between two remote computers. The Communications Toolbox allows you to choose a file transfer method.

file transfer tool: A program that performs a particular type of file transfer and that uses the Communications Toolbox to display the file transfer option to you.

filename: The name that identifies a file. The maximum character length of a Macintosh filename is 31 characters for a document or folder, 27 characters for a disk. A name can't contain a colon (:), and it should not begin with a period (.).

Finder: Macintosh system software that displays files and programs on your desktop.

hard disk: A permanently encased storage area on the Macintosh.

hierarchical file system (HFS): A form of computer memory organization in which files, including folders, can be nested within folders.

host computer: A computer that contains a program or programs that you want to use.

host vendor: A company that provides services from a host computer.

host: A computer that contains a program or programs that you want to use.

icon: An image that graphically represents an object, a concept, or a message. For example, AppleShare is represented by a hand holding files, folders, and programs.

information mode: The way you use MacX25 Admin when you are not making changes to the MacX25 gateway. When you launch MacX25 Admin, the program opens in information mode. Compare with administration mode.

internet: Two or more networks interconnected by bridges to form a larger network. Network users in an internet can share information and network devices.

InterProcess Communications: Macintosh software that handles communications between the Macintosh system software and the software that runs on the Apple Serial NuBus Card.

invert: To change a portion or all of your Macintosh screen so it appears as white on black instead of as black on white.

invoke: To call for support. A program often invokes one or more other programs to handle certain tasks. For example, MacPAD calls Open Book to display a list of hosts when you are either configuring your connection or making a call.

IPC: See InterProcess Communications.

K: An abbreviation for kilo, which means one thousand.

KB: An abbreviation for kilobyte, which is equal to 1024 bytes.

launch: To put into action. When you open a program, you are launching it.

LCN: See logical channel number.

link: An available line of communication between an entry point into a packet-switched data network (usually called data communications equipment (DCE)) and an end point (usually called data terminal equipment (DTE)) that is not part of the packet-switched data network. With MacX25, the MacX25 server supports an X.25 link. MacX25 users on the AppleTalk network can share this link., using it to connect to host computers on the packet-switched data network.

logical channel number: (LCN) A number that X.25 communications software assigns to each new virtual circuit that the MacX25 server establishes. The DTE on an X.25 link assigns the LCN for each call that originates locally. The DCE on an X.25 link assigns the LCN for each call that originates at the remote end.

MacPAD: A connection tool program that you can use to communicate with host computers that are connected to an packet-switched data network. To successfully make or receive calls with MacPAD, you must have access to a MacX25 server on the AppleTalk network; you must be using a terminal program that uses the Communications Toolbox; and you must have login privileges with the host computer that you want to use.

MacX25 Admin program: A program that you use to set up and manage the MacX25 servers on the AppleTalk network system.

MacX25 Admin window: A window that MacX25 Admin displays when the program is in information mode. This window contains information about the activity of the MacX25 servers in the MacX25 gateway.

MacX25 Folder: A folder that contains the MacX25 Admin program and all of the files that this program uses.

MacX25 gateway: In the case of MacX25, a Macintosh II family computer that supports one or more MacX25 servers for the AppleTalk network system.

MacX25 Server disk: The 3.5-inch floppy disk that contains all of the files and programs that you need to set up the MacX25 gateway.

MacX25 server: The hardware and software required to support one X.25 link between an Apple Serial NuBus Card in a Macintosh II family computer and a network computer of a packet-switched network computer. If the Macintosh is connected to an AppleTalk network system, other Macintosh computers on the AppleTalk network can use the X.25 link provided by the MacX25 server to connect to a remote host on the X.25 network.

MacX25 Servers file: The file that MacX25 Admin creates and in which it stores the admin key and any information on a MacX25 server that you save.

MacX25 User disk: The 3.5-inch floppy disk that contains the files and programs that allow the Macintosh to gain access to the MacX25 servers on the AppleTalk network.

MacX25 Users file: The file that MacX25 Admin creates and in which it stores any information on a MacX25 user that you save.

MacX25: A product that allows Macintosh computers on an AppleTalk network system to gain access to a packet-switched data network. MacX25 includes MacX25 Server and MacX25 User software.

Master Address Book: An address file that Open Book creates and displays when the MacX25 Admin program uses Open Book. When this file is available on the MacX25 gateway, a MacX25 user can use the Chooser desk accessory to copy MacX25 addresses from the Master Address Book to a local Addresses file.

menu bar: The horizontal strip at the top of your screen that contains pull-down menus.

menu: A list of commands that appears when you point to a menu title and hold your mouse button down.

modifier key: A key that you press in combination with a readable character to change its meaning. Sometimes you press a modifier key to change the action of clicking or dragging. Examples of modifier keys are Command and Option.

network address: For a host computer that is connected to a packet-switched data network, the network address normally consists of a sequence of alphanumeric characters.

network administrator: A person who manages the hardware and software that connects computers in a network. With MacX25, the network administrator is responsible for managing the MacX25 servers and the X.25 links that they support, and may also be responsible for managing the AppleTalk network system through which the MacX25 User software operates.

network switch: A network computer within a packet-switched data network.

network vendor: A company that provides services from a network.

NuBus slot: A connector inside a Macintosh II family computer's main unit that allows you to install expansion cards to enhance the computer's performance.

Open Book: An application that displays information from an address file, like Addresses, and that allows you to edit an address file.

packet assembler disassembler (PAD): A program that assembles outgoing characters from a user device into X.25 packets for network transmission; and that disassembles incoming X.25 packets into characters for the user device to display (or process).

packet-switched data network (PSDN): A network that is specifically designed for transferring data between numerous source and destination points connected to the network. Telenet is one well-known example of a packet-switched data network.

packet-switched wide area data network: See packet-switched data network.

packet: See X.25 packet.

PAD parameters: The system of reporting the characteristics of the terminal to a remote host computer. PAD parameters and their possible settings are defined in the CCITT X.3 recommendation.

PAD: See packet assembler disassembler.

parameter group: MacX25 Admin groups the X.25 parameters whose settings you can change into parameter groups, and displays one parameter group in the parameter information window. The window has a pop-up menu that you use to view the choose to parameter group that you want to see.

parameter information window: The window that MacX25 Admin displays when you choose the Open Parameter File command in the File menu. This command appears in the File menu only when MacX25 Admin is in administration mode.

parameter setting: The value assigned to a parameter.

pencil icon: An icon that appears in front of records in Open Book's upper-right list box. If the pencil is dimmed, you cannot examine the contents of the record. If the pencil is not dimmed, you can select the record and edit its contents.

permanent virtual circuit: A permanent virtual circuit is permanently assigned to a specific device and remains connected at all times. MacX25 does not support permanent virtual circuits.

PVC: See permanent virtual circuit.

RAM: See random access memory.

random-access memory (RAM): The part of a computer's memory that stores programs and other information temporarily while you're working with it.

read only memory (ROM): The part of the computer's memory that contains information that the computer uses throughout the system. For example, the system files and the programs that the computer uses to get itself started are stored in ROM. Information in ROM is permanent; it doesn't vanish when you switch the power off.

ReadMe: A file that contains information about the programs and files on the disk on which you find it.

Ready to start: In MacX25 Admin, a condition of the NuBus slot on the Macintosh computer. A slot is ready to start after you assign a MacX25 server to the slot.

record: A place where Open Book stores information about an address book entry. MacX25 entries have an X.25 Connection record and an X.25 Server record.

remote host computer: A computer that is connected to a packet-switched data network and that you access through the network.

remote host: See remote host computer.

ROM: See read only memory.

select: To designate where the next action will take place. To select, you click an icon or drag across information.

serial connection: A connection in which information is transmitted sequentially, a bit at a time, over a single wire or channel.

Server Agent: A program that performs actions for the MacX25 servers.

Server List window: In MacX25 Admin, a window that lists all of the MacX25 servers in the MacX25 gateway. You can display this window only when MacX25 Admin is in administration mode.

Server menu: In MacX25 Admin, a menu that is available only when the program is in administration mode. You use the Server menu to create, modify, start, stop, and delete MacX25 servers.

server information window: In MacX25 Admin, a window that you use to enter information about a specific MacX25 server. You can display this window only when MacX25 Admin is in administration mode.

server status: In MacX25 Admin, the current status of a MacX25 server.

Signals high: In MacX25 Admin, the status of a MacX25 server after you start the server and before the server status is Active. This status appears when the MacX25 server is connected to a modem.

Slot Assignment box: In MacX25 Admin, an area of a server information window in which you assign the MacX25 server to a slot in the MacX25 gateway.

slot condition: In MacX25 Admin, the way that a slot appears in the MacX25 Admin window (in information mode) or in a server information window (in administration mode). The slot condition tells you if the expansion slot has an Apple Serial NuBus card and, if so, if the card is running MacX25 software.

Started: In MacX25 Admin, the status of a MacX25 server after you choose the Start command to start the server.

startup disk: A disk with all the necessary program files—such as the Finder and System file contained in the Macintosh System Folder—to set the computer into operation.

status dialog: A dialog that MacPAD displays when you choose Status from the MacPAD menu. The status dialog contains information about the current status of your connection.

System Folder: The folder that contains all of the system files the disk on which it resides.

system file: A file the computer uses to start itself up or to provide system-wide information. Although system files are represented by icons just as documents and applications are, you can't open them in the same way. You can, however, alter the contents of some system files.

System: The set of files and resources in the System Folder that the computer uses to run itself.

TeachText: An application that displays information from a ReadMe file.

terminal emulator: A program that makes a device look like another type of device.

terminal settings document: A document that a terminal emulator program, like MacTerminal, creates when you save a session to a file. You can double click on a terminal settings document to launch the program with the settings that are stored in the document.

terminal tool: A program that performs a particular type of terminal emulation and that uses the Communications Toolbox to display the terminal type option to you.

terminal: A device connected to a network that can send and receive data. A terminal generally has a screen (or monitor) and a keyboard.

User information window: In MacX25 Admin, a window that you use to enter information about a specific MacX25 user. You can display this window only when MacX25 Admin is in administration mode.

User List window: In MacX25 Admin, a window that lists all of the MacX25 users in the MacX25 gateway. You can display this window only when MacX25 Admin is in administration mode.

user interface: The appearance of the screen, its layout, and all of the options on the screen. Each type of computer and each application has its own user interface. On the Macintosh computer, the user interface of the Finder screen is the Desktop.

Users menu: In MacX25 Admin, a menu that is available only when the program is in administration mode. You use the Users menu to create, modify, and delete MacX25 users.

Video Card: An expansion card for the Macintosh II family computer that runs the monitor.

virtual circuit: An active connection between two end points over an X.25 link. The end points are devices, usually a host computer on one end and a terminal on the other, that reside outside of the packet-switched data network.

wide area network (WAN): A packet-switched data network.

X.25 call: The process of establishing a connection with a remote computer or other device over an X.25 link. See also link.

X.25 Chooser document: System software that lets a MacX25 user use the Chooser desk accessory to gain access to a MacX25 server, and to copy entries from the Master Address Book to a local Addresses file.

X.25 connection: A line of communication between two points over an X.25 link. See also link.

X.25 link: See link.

X.25 network connection: A successful line of communication between two points over an X.25 link. See also link.

X.25 network: See packet-switched data network.

X.25 packet: A message that is transmitted over an X.25 network. A packet contains data or control information along with the information necessary for the network to deliver the packet to its intended destination and for the receiving device to perform error checking when the packet arrives.

X.25 services: Access to information over a packet-switched data network. This can include use of a public network by host vendors and their users, and can include the sale and support of private X.25 networks.

MacX25 Admin Quick Reference

Using MacX25 Admin for the first time

1. Double-click your hard disk icon to open your hard disk.

2. Locate the MacX25 Folder.

3. Open the MacX25 Folder by double-clicking its icon.

4. Double click the MacX25 Admin icon.

■ Specifying your Admin key

To specify your Admin key, follow these steps:

1. Type the characters that you want for your Admin key and then click OK.

2. Click OK, if you want the characters that you just typed to be used as the Admin key.

3. Click OK.

■ Putting MacX25 Admin into administration mode

To put MacX25 Admin into its administration mode, follow these steps:

1. Choose Administration from the Special menu.

2. Type your Admin key, and click OK.

■ Saving the MacX25 Log

To save the contents of the Log window, follow these steps:

1. Select the MacX25 Log window by clicking anywhere inside it.

2. Choose Save from the File menu.

3. Type a name for the new file, and click OK.

Creating a new MacX25 server

To create a new MacX25 server, follow these steps:

1. Choose Create Server from the Server menu.

2. Type in the name that you want to give to the new server.

3. Click Select to see a list of the available parameter files.

4. Click the name of the parameter file that you want the server to use, and click OK.

5. Indicate in the check box whether you want MacX25 Admin to automatically start this server each time you launch MacX25 Admin.

6. Click the slot to which you want to assign the MacX25 server.

7. Click Save.

■ Starting a MacX25 server

To start a server:

1. Select the server.

2. Choose Start from the Server menu.

■ Stopping a MacX25 server

You can stop only a MacX25 server that is active or busy. To stop a server:

1. Select the server.

2. Choose Stop from the Server menu.

3. Enter the number of minutes that you want MacX25 Admin to wait before stopping the indicated server, and click OK.

Creating a new MacX25 user

To create a new user for the MacX25 gateway, follow these steps:

1. Choose Create User from the Users menu.

2. Type the name that you want to give to the new user.

3. Type a password for the user.

4. Indicate in the check box that appears after Change Password Enabled whether you want the user to be able to change the password .

5. Indicate in the check box next to each server name whether you want the user to have access to that server.

6. Click Save.

Creating the Master Address Book

To open the Master Address Book, follow this instruction:

> Choose Open Master Address Book from MacX25 Admin's File menu.

■ Adding entries to the Master Address Book

To add new entries to the Master Address Book, follow these steps:

1. Choose New Entry from Open Book's Edit menu.

2. Type the name that you wish to give the new entry.

3. Click OK.

■ Putting information into the X.25 Connection record

To put information into the X.25 Connection record, follow these steps:

1. Select the X.25 Connection record.

2. Click Edit.

3. Type the full X.25 network address of the host.

4. Click Save.

■ Putting information into the X.25 Server record

To put information into the X.25 Server record, follow these steps:

1. Click on the X.25 Server record.

2. Click Edit.

3. Select the AppleTalk zone to which your MacX25 gateway is connected from upper-left list box.

4. Select the MacX25 Server that supports connections to the host named in this entry from the upper-right list box.

5. Click Save.

Returning to information mode

> Choose Quit Admin from the File menu.