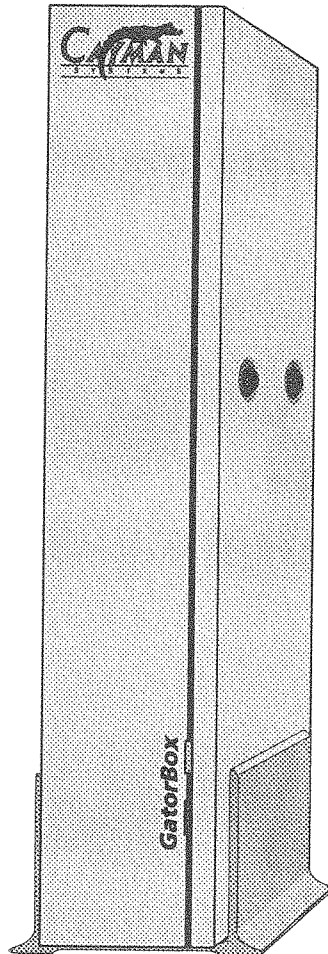


Setting Up Your GatorBox[®]

Hardware Installation Guide

August 1991



This manual describes how to set up and connect the GatorBox network gateway and how to download its software. This manual, taken together with the 2.0 version of the *GatorBox User's Guide* and the *GatorBox Reference*, completely replaces previous versions of the GatorBox documentation. Changes to this manual will be distributed as document updates or new revisions.

Your comments about this manual are welcome. Use the forms at the back of the manual or address your comments to:

Technical Services
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Changes or modifications to the GatorBox not expressly approved by Cayman Systems can void your authorization to operate the equipment.

FCC Class A Notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his or her own expense.

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Reader Reply Card

About this manual

This manual describes how to unpack and set up the GatorBox® and how to connect it to your LocalTalk™ and Ethernet™ networks. It also explains how to set up a Macintosh® or TFTP server as a download server for the GatorBox. You should read this manual completely before you connect your GatorBox to your LocalTalk or Ethernet networks.

Who should read this manual

This manual is intended for network administrators or anyone responsible for setting up and maintaining the GatorBox hardware and software to connect LocalTalk and Ethernet networks.

What this manual covers

Here's what you will find in this manual:

- ▶ **Chapter 1**, "About the GatorBox," describes the features and components of your GatorBox.
- ▶ **Chapter 2**, "Connecting the GatorBox," describes how to set up your GatorBox and how to connect and disconnect it from your LocalTalk and Ethernet networks.
- ▶ **Chapter 3**, "Downloading," describes how to use set up a Macintosh or TFTP server as a download server to provide the GatorBox with its software image and configuration settings.
- ▶ **Appendix A**, "GatorBox Specifications," details the GatorBox hardware specifications and the environment you should provide for it.

What you should know before starting

This manual assumes that you are familiar with basic Macintosh operations, such as clicking, double-clicking, and dragging. This manual also assumes that you are familiar with the components of the Macintosh user interface, such as menus, windows, dialog boxes, buttons, radio buttons, and checkboxes. If you are not familiar with these terms, review the documentation that came with your Macintosh.

This manual assumes that you are familiar with AppleTalk, DECnet, and TCP/IP networks in general and with your network topology in particular. If you need more information about AppleTalk or Ethernet networks, refer to the *GatorBox Reference*, which is supplied with your GatorBox software.

If you will be using the GatorBox for terminal emulation, DECnet routing, or file sharing, this manual assumes that you are familiar with the appropriate files, commands, and protocols for your computers and networks.

Documentation conventions

This manual uses certain conventions to present information:

- ▶ **Menu commands and button names** appear in bold italic sans serif type face; for example:

Select the *About GatorKeeper* command from the Apple menu to display the version number and copyright notice of your GatorKeeper software.

- ▶ **Computer display text** appears in Courier (monospace) type face; for example:

The syntax for the group file is:

```
sales:*:14:jane,sandy,kim,peter,josiah
other:*:16:
```

- ▶ **User-entered text** appears in bold Courier type face; for example:

Enter **ping <IP address>** to determine if the IP address you have selected is being used by another device on your network.

- **Icons** identify special types of text:



*A lightning bolt icon indicates an **Electrical Hazard** warning. You should not proceed with an activity until you thoroughly read and understand the electrical hazard warning.*



*A raised hand icon indicates important **Caution** information. You should not proceed with an activity until you thoroughly read and understand Caution information.*



*An exclamation point icon indicates **Alert** information. Alert messages provide important additional information about an activity or concept.*



*A **talking head** icon indicates **Note** information. Notes provide additional or supplementary information about an activity or concept.*



*A **book** icon indicates **Cross-Reference** information. Cross-references point to information in other manuals in your GatorBox documentation set or to other books or sources that may be useful to understanding an activity or concept.*

For more information

You should refer to the following manuals to obtain more information about your GatorBox hardware and software:

- The *GatorBox User's Guide* explains how to set up your GatorBox to perform TCP/IP service, AppleTalk routing, and DECnet routing. If you purchased the GatorPrint™ or GatorShare™ software, update pages to the *GatorBox User's Guide* describe how to set up your GatorBox to support UNIX-to-LocalTalk printing and AppleShare-to-NFS file sharing.
- The *GatorBox Reference* provides overview and technical information about the GatorBox, its software, and networks in general.
- *GatorAid*, Cayman's technical support manual, provides advanced troubleshooting tips and information about third-party products.

You may want to read the following documents for more information about AppleTalk and TCP/IP networking topics:

- ▶ *AppleTalk Network System Overview*, Apple Computer, Addison Wesley © 1989.
- ▶ *Inside AppleTalk*, 2nd Edition, Sidhu, Andrews, and Oppenheimer, Addison Wesley © 1990.
- ▶ *Internetworking with TCP/IP*, 2nd edition, Douglas Comer, Prentice-Hall © 1991.
- ▶ *The Simple Book*, Marshall T. Rose, Prentice-Hall © 1991.
- ▶ *Introduction to Administration of an Internet-based Local Network*, Charles Hedrick, Rutgers University, © 1988.

You can consult the Internet Request for Comments (RFCs) for background and technical information about TCP/IP protocols and standards. RFCs can be obtained by anonymous FTP from `nic.ddn.mil`.

Your UNIX system may also have on-line documentation (Man Pages) available. To use the UNIX Man Pages, type `man <topic>`.

Cayman Technical Services

Cayman's Technical Services staff is experienced in the installation and use of the GatorBox hardware and software. If this manual does not answer your questions about the GatorBox, you can call Cayman's Technical Services staff at **(617) 494-1999** on all regular business days from 9:00 AM to 6:00 PM Eastern Time. You can also send a message anytime by using one of the following:

FAX: (617) 494-5167
Internet: support@cayman.com
AppleLink: CAYMAN.TECH

Chapter 1

About the GatorBox

GatorBox software

GatorBox front panel

GatorBox rear panel

The GatorBox® is a member of Cayman Systems' family of network gateway products, which also includes the GatorBox CS, the GatorMIM™ CS, and the GatorBox CS/Rack. Your GatorBox includes the following:

- ▶ Motorola MC68000 processor
- ▶ 10 MHz clock frequency
- ▶ 1 MB Dynamic Random Access Memory (DRAM)
- ▶ Bootstrap software stored in 128K Erasable Programmable Read Only Memory (EPROM)
- ▶ Configuration settings stored in 2K Nonvolatile Random Access Memory (NVRAM)
- ▶ Power transformer (may be packaged separately for international customers)
- ▶ One year hardware warranty
- ▶ Optional twisted pair Ethernet transceiver
- ▶ Optional wall mount bracket

GatorBox software

The GatorBox is shipped with the GatorSystem™ software. GatorSystem lets the GatorBox function as a TCP/IP gateway, as an AppleTalk router, and as a DECnet router:

- ▶ As a TCP/IP gateway, the GatorBox lets Macintoshes on LocalTalk communicate with TCP/IP computers on Ethernet. For example, a Macintosh on a LocalTalk network can initiate a terminal session to a UNIX computer on a TCP/IP network.
- ▶ As an AppleTalk router, the GatorBox lets devices on one AppleTalk (LocalTalk or EtherTalk) network communicate with devices on another AppleTalk network. For example, a Macintosh on one LocalTalk network can exchange information with a Macintosh on Ethernet or it can submit a print job to a LaserWriter on a remote LocalTalk network.

- As a DECnet level 1 router, the GatorBox gives Macintoshes on LocalTalk access to VAX/VMS services, such as Digital's PATHWORKS and DECwindows.

By upgrading the software in the GatorBox to GatorPrint™ or GatorShare™, you can extend the interaction between devices on LocalTalk and devices on Ethernet further. GatorPrint lets computers that support the lpr print spool command set send print jobs to printers on a LocalTalk network. GatorShare lets Macintosh users create, store, update, and delete files on Network File System (NFS) hosts.

GatorBox front panel

The front panel of the GatorBox includes two light emitting diodes (LEDs):

- The top (red) LED indicates network activity in the GatorBox.
- The bottom (green) LED indicates that the GatorBox is powered on.

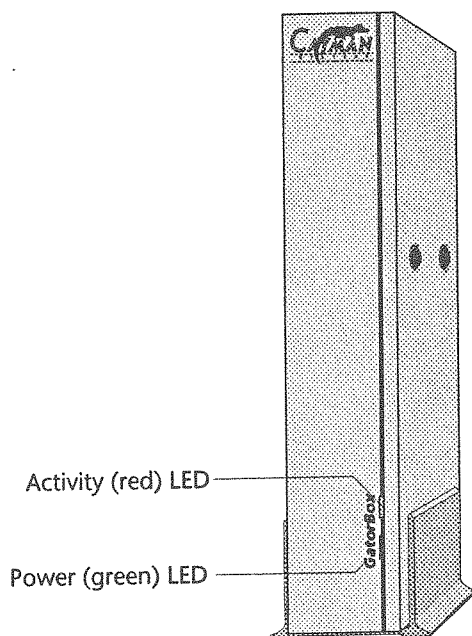


Figure 1-1. GatorBox front panel

Interpreting the LEDs

The LEDs on the GatorBox front panel help diagnose hardware or software problems:

- ▶ **Green LED on, red LED flashing** — Indicates normal operation.
- ▶ **Green LED flashing, red LED off** — Indicates that the GatorBox has crashed. Obtain a crash signature and restart the GatorBox.



For information on obtaining a crash signature, refer to Chapter 8 of the *GatorBox User's Guide*.

- ▶ **Both LEDs off** — May indicate that the GatorBox is unplugged, that the transformer has failed, or that the fuse in the GatorBox has blown. If both lights stay off after you restart the GatorBox, contact Cayman Technical Services.



Both LEDs turn off for a few seconds when the GatorBox is restarted. This is normal during the download process.

- ▶ **Both LEDs on** — May indicate a hardware problem or a software crash. If both lights stay on after you restart the GatorBox, contact Cayman Technical Services.

GatorBox rear panel

Figure 1-2 illustrates the GatorBox rear panel.

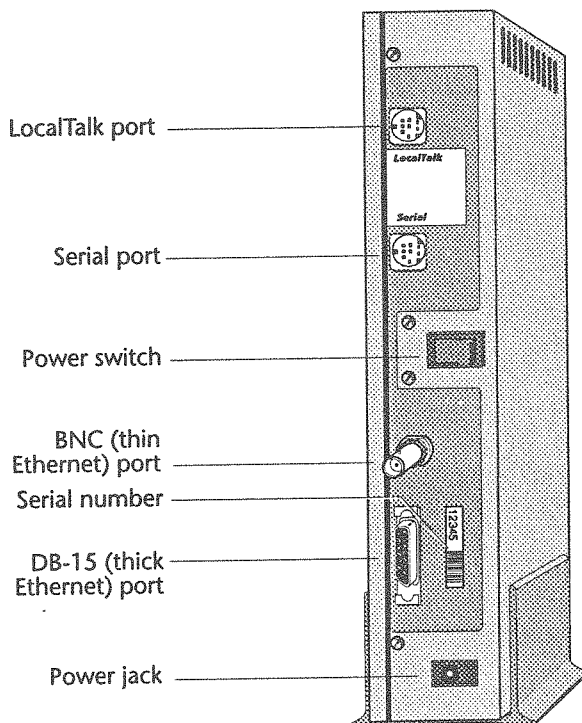


Figure 1-2. GatorBox rear panel

You will see the following items on the rear panel of the GatorBox:

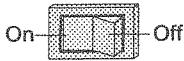
- ▶ **LocalTalk port** — The LocalTalk (DIN-8) port lets the GatorBox communicate with devices on your LocalTalk network. You connect a LocalTalk (or PhoneNET) connector box to the GatorBox LocalTalk port. You then connect LocalTalk cable segments to one or both ports on the connector box.



You must turn the plug on the LocalTalk connector box 90° clockwise (so that the flat part of the plug faces the right) to insert it into the GatorBox.

- ▶ **Serial port** — The serial (DIN-8) port is used by Cayman Engineering to run diagnostics on the GatorBox hardware. **The serial port is not**

intended for end-user use. Specifically, the serial port cannot be used to connect the GatorBox to a modem, printer, or serial device.



- ▶ **Power switch** — The power switch lets you turn the GatorBox on and off. The GatorBox is turned on when the left side of the switch (viewing the GatorBox from the rear) is pressed in. (The illustration in the margin shows the switch in its “On” position.)

- ▶ **BNC (thin Ethernet) port** — The BNC port lets the GatorBox communicate with devices on a thin Ethernet network (or with devices on a twisted pair Ethernet network if a BNC-to-twisted pair transceiver is used).

- ▶ **Serial number** — Each GatorBox is assigned a unique five-digit serial number when it is manufactured. The serial number for your GatorBox must appear on the GatorBox registration card.



Older GatorBoxes may not have a serial number label on the rear panel. To obtain the serial number for a GatorBox lacking a serial number label:

1. Run GatorKeeper and open the GatorBoxes window.
2. Click the icon representing the GatorBox.
3. Select *Info* from the Special menu.
4. Copy the number listed in the *Serial Number* field.

- ▶ **DB-15 (thick Ethernet) port** — The DB-15 port lets the GatorBox communicate with devices on a thick Ethernet network (or with devices on a twisted pair Ethernet network if a DB-15-to-twisted pair transceiver is used).

- ▶ **Power jack** — The GatorBox requires a Class 2 transformer. Transformers for standard U.S. and foreign power sources are available from Cayman Systems and its distributors.



Do not use a transformer that has not been approved by Cayman Systems. While non-approved power supplies may appear compatible with the GatorBox power jack, they may not work and may result in damage to the GatorBox.

Chapter 2

Connecting the GatorBox

What's in the GatorBox shipping carton?

Completing the product registration card

Connecting the GatorBox

Disconnecting the GatorBox

What's in the GatorBox shipping carton?

The first thing you should do when you receive the GatorBox package is confirm that it contains everything it should. Remove all the materials from the packing box and verify that you have the following:

- ▶ The GatorBox network gateway in a protective antistatic bag
- ▶ Power transformer (Special transformers may be packaged separately for some non-U.S. destinations.)
- ▶ *Setting Up Your GatorBox* manual
- ▶ GatorBox product registration card
- ▶ Release notes
- ▶ Software binder containing:
 - ▷ *GatorBox User's Guide*
 - ▷ *GatorBox Reference*
 - ▷ GatorSystem Installation disk (see Caution, below)
 - ▷ GatorSystem Application disk
 - ▷ Network Applications disk
 - ▷ Software registration card
- ▶ *GatorAid* technical support handbook



If you purchased the GatorPrint or GatorShare software for every GatorBox at your site, you should discard the GatorSystem software disk. The GatorPrint or GatorShare software completely replaces the GatorSystem software. You should retain the Network Applications disk and the GatorBox documentation.

What's in the GatorBox shipping carton?

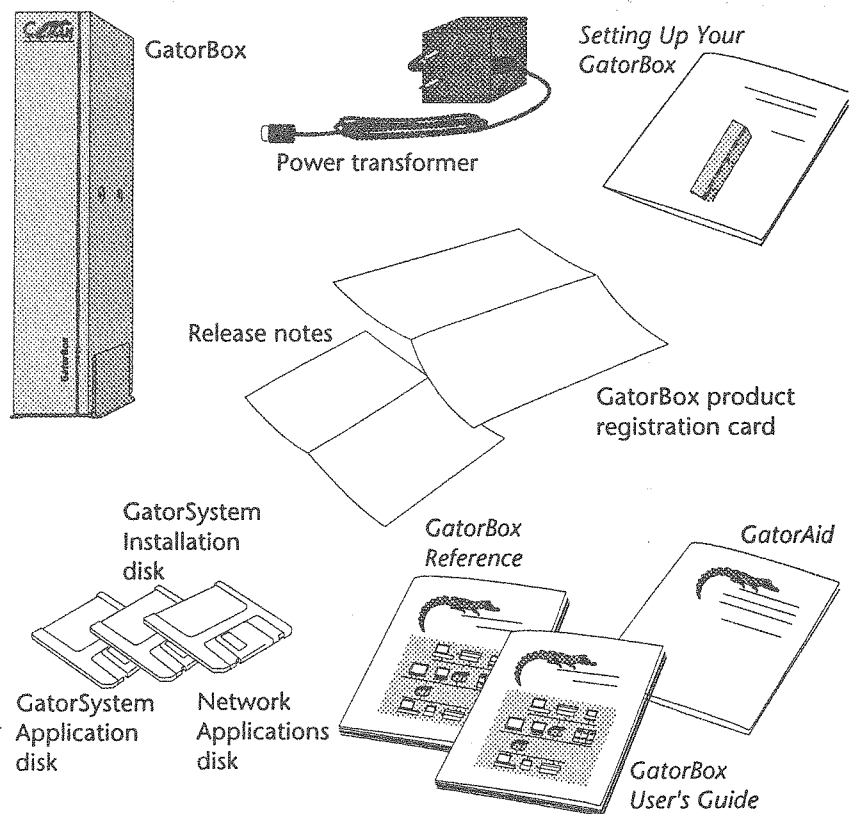


Figure 2-1. What's in the GatorBox shipping carton

If your GatorBox shipping carton does not contain everything on this list, contact Cayman Technical Services at (617) 494-1999.



Keep the box and all the packing materials used to ship your GatorBox. Repack your GatorBox in its original carton if you have to move it over long distances or if you need to ship it to another location.

Completing the product registration card

Be sure to fill out the postage-paid GatorBox product registration card for each GatorBox you purchase. Verify that the product registration card lists the GatorBox serial number, which is located on the GatorBox rear panel next to the DB-15 (thick Ethernet) port.

Return the product registration card to Cayman Systems to register your purchase of the GatorBox. As a registered user, you are entitled to one year's free telephone support. Registering your GatorBox also ensures that you will receive timely notice about software updates and a subscription to the *CommuniGator*, Cayman's technical support newsletter.

GatorBox		GatorBox Serial Number: _____	
Product Registration Card			
USER INFORMATION: (Required)		Date of Purchase: ____/____/____	
First name _____	M.I. _____	Last name _____	
Company _____		Title _____	
Company address _____			
City _____	State _____	Zip code _____	
Country _____	Area code _____	Phone # _____	
NETWORK CONFIGURATION INFORMATION: (Optional)			
How many computers do you have installed at present?		How many of these are on a network with a GatorBox?	
Macintosh Plus, SE _____			
Macintosh SE/30 _____			
Macintosh II-class _____			
80286 Personal Computer _____	DOS OS/2 _____	DOS OS/2 _____	
80386 Personal Computer _____	DOS OS/2 _____	DOS OS/2 _____	
80486 Personal Computer _____	DOS OS/2 _____	DOS OS/2 _____	
Sun Workstation _____			
DEC Workstation or Mini _____	VMS UNIX _____	VMS UNIX _____	
IBM Mainframe or Mini _____	VM/MVS UNIX _____	VM/MVS UNIX _____	
Other UNIX systems _____			
Check the network software you use or plan to use:		What bridges or routers do you currently use?	
☐ AppleShare	☐ InBox	☐ Hayes InterBridge	☐ Infosphere Liaison
☐ Sika TOPS	☐ VAX Mail	☐ Shiva FastPath IV	☐ Proteon IP router
☐ 3 Com 3+	☐ MCI Mail	☐ Shiva FastPath III	☐ TriData Netway 1000
☐ 3 Com 3+ Open	☐ Pacer	☐ Shiva FastPath II	☐ Cisco IP router
☐ IBM LAN Server	☐ Alisa	☐ Shiva FastPath I	☐ Apple Internet Router
☐ Novell Netware	☐ KIP	☐ Shiva NetBridge	☐ Webster MultiGate
☐ IBM PC LAN	☐ GatorPrint	☐ Shiva TeleBridge	☐ NRC MultiGate
☐ UNIX Mail	☐ GatorShare	☐ Wellfleet IP Router	☐ APT CommTalk
☐ QuickMail	☐ GatorMail	☐ Dayna EtherPrint	☐ Ungermann-Bass
☐ Microsoft Mail	☐ Other _____	☐ T1 Data Links	☐ Other _____
PRODUCT PURCHASE INFORMATION: (Optional)			
Where did you purchase this Cayman product?		Please list the three computer magazines you read most frequently:	
☐ Direct from Cayman	☐ Dealer or store	1. _____	
☐ System Integrator	☐ Other _____	2. _____	
How did you hear about this Cayman product?		3. _____	
☐ Dealer	☐ Trade show		
☐ Advertising	☐ Direct mail		
☐ Article	☐ Colleague		

Connecting the GatorBox

You connect your LocalTalk and Ethernet networks to ports on the rear panel of the GatorBox. Complete the following steps to connect the GatorBox to your AppleTalk and Ethernet networks.

Position the GatorBox

1. **Stand the GatorBox vertically in a location where air can circulate freely around it.**

The GatorBox case has vents on its top and on one side. Leave at least two (2) inches of clearance between the vents on the GatorBox and any object that might restrict air flow. Never operate the GatorBox on its side or cover its vents.

Connect the GatorBox transformer

2. **Verify that the GatorBox is turned off.**

The GatorBox is turned off when the right side of the power switch (viewing the GatorBox from the rear) is depressed.

3. **Plug the round end of the power transformer into the power jack on the rear panel of the GatorBox.**



You must connect the transformer to the GatorBox before you plug it into your AC outlet. Failure to do so may result in damage to your GatorBox.

4. **Plug the other end of the power transformer into a 110-120 (or 220-240) volt AC outlet.**

Connect the GatorBox to LocalTalk

5. **Plug a LocalTalk (or PhoneNET) connector box into the LocalTalk port at the top of the GatorBox rear panel.**

The flat part of the LocalTalk connector plug should face the right side of the GatorBox (viewing the GatorBox from the rear).

6. **Plug one end of a LocalTalk (or PhoneNET) network cable into the connector box you connected to the GatorBox in Step 5.**

The LocalTalk connector box has two ports. You can use either one.

7. **Plug the other end of the LocalTalk network cable into a LocalTalk connector box attached to your LocalTalk network.**

Connect the GatorBox to Ethernet

8. **Connect the GatorBox to your Ethernet network.**

- ▷ **If you are using thin Ethernet**, attach the Ethernet T-connector to the thin Ethernet (BNC) port on the GatorBox rear panel. Secure the T-connector by twisting the sleeve on the connector clockwise. To avoid grounding the Ethernet cable, do not allow the BNC connector to touch any metal surfaces.

Connect the thin Ethernet cable to one or both arms of the T-connector. **If you do not attach cable segments to both arms of the T-connector, you must attach a terminator to the unused arm.**

- ▷ **If you are using thick Ethernet**, attach the transceiver connector to the DB-15 port on the GatorBox rear panel. Secure the transceiver cable by sliding the locking mechanism up.
- ▷ **If you are using twisted pair Ethernet**, you can order a twisted-pair-to-DB-15 transceiver from Cayman Systems. Attach the twisted-pair transceiver to the DB-15 port on the GatorBox rear panel.

9. **Turn on the GatorBox.**

Press the left half of the GatorBox power switch. The LEDs on the front panel of the GatorBox should both turn on and then off as the GatorBox begins downloading its software and configuration settings. Once the download process is underway, the green LED should remain on and the red LED should begin blinking.

Disconnecting the GatorBox

Complete the following steps to disconnect your GatorBox from your LocalTalk and Ethernet networks.

1. **Inform network users.**

Before you disconnect the GatorBox, let your network users know that services will be interrupted temporarily and that communications between AppleTalk and Ethernet will be suspended.

2. **Turn off the GatorBox.**

Use the power switch on the rear panel to turn off the GatorBox. The GatorBox is powered off when the right side of the switch is depressed.

3. **Unplug the GatorBox transformer.**

Unplug the GatorBox transformer from the wall outlet. **After you have unplugged the transformer from its wall outlet, unplug it from the GatorBox.**

4. **Disconnect the GatorBox from LocalTalk.**

Unplug the LocalTalk connector from the LocalTalk port at the top of the GatorBox rear panel. **To avoid interrupting communication along the LocalTalk cable, do not disconnect the LocalTalk cables from the connector box.**

5. **Disconnect the GatorBox from Ethernet.**

- ▷ If you are using thin Ethernet, remove the Ethernet T-connector from the BNC port on the GatorBox rear panel. **To avoid interrupting communication along the Ethernet backbone, do not remove the Ethernet cables from the arms of the T-connector.**
- ▷ If you are using thick or twisted-pair Ethernet, disconnect the cable transceiver from the DB-15 port on the GatorBox rear panel.

6. **Put the GatorBox in its carton.**

Return the GatorBox to its original carton if you are moving it to a different location.



Chapter 3

Downloading

What is downloading?

Download scenarios

Setting up the download server

When you have finished



Before you begin setting up your download server, you should be familiar with the GatorBox download process and the options available to you. This chapter describes some basic concepts about downloading and provides five scenarios for setting up your download server(s). The chapter concludes with instructions for how to implement the download scenario most appropriate for your site.

What is downloading?

Downloading is the process of copying the GatorBox's operating software file and configuration files from a Macintosh or UNIX computer (the download server) to the GatorBox's dynamic memory. You must identify a primary download server for each GatorBox on your internet.

The GatorBox retains information about its download server in its non-volatile random access memory (NVRAM) when it is turned off. When a GatorBox is turned on, it reads this information and establishes a connection to its download server. The GatorBox then downloads its operating software file and configuration settings into its internal memory.

The GatorBox needs three files to download successfully:

- ▶ The **GatorBox operating software file** (GatorSystem, GatorPrint, or GatorShare) is the software that runs on the GatorBox to perform TCP/IP services, AppleTalk routing, DECnet routing, UNIX-to-LocalTalk printing, and AppleShare-to-NFS file sharing. The operating software file must be downloaded from a Macintosh on the GatorBox's LocalTalk network or from a TFTP (Trivial File Transfer Protocol) server (which can be a UNIX computer or a Macintosh with the UDP TFTP INIT) on the Ethernet network. The operating software file cannot be downloaded from a Macintosh on a remote LocalTalk network or from a Macintosh on an EtherTalk network (that is, a Macintosh communicating over Ethernet via the AppleTalk protocols).
- ▶ The ***GatorBoxName*** file (that is, GatorBoxnnnnnn or the name you have assigned to the GatorBox) is the file containing the configuration settings for the specific GatorBox. The *GatorBoxName* file can be downloaded from a Macintosh on the GatorBox's LocalTalk network, from a TFTP server, or from a Macintosh on a remote LocalTalk or EtherTalk network.

- The **GatorDatabase** file is a list of the names and IP addresses of network file servers available from a GatorBox. The GatorDatabase file can be downloaded from a Macintosh on the GatorBox's LocalTalk network, from a TFTP server, or from a Macintosh on a remote LocalTalk or EtherTalk network.



If you modify the GatorBox's configuration settings, you must save your changes and restart the GatorBox so that the modified settings can be downloaded to the GatorBox memory.

Primary and secondary download servers

You can specify a primary and secondary download server for a GatorBox. The *primary download server* is the first place the GatorBox looks when it needs to download its software. If the primary download server is not available or if the GatorBox cannot find one of its files on the primary server, it looks for the *secondary download server* to retrieve the missing information.

You can use a Macintosh or a host that supports TFTP as a primary or secondary download server.



Specifying a secondary download server for a GatorBox provides a redundant source for its operating software file and configuration settings, which can help the GatorBox return to service quickly after a power failure.

Downloading and *atalkad*

The *atalkad* (AppleTalk administration daemon) software was developed at Stanford University to provide centralized AppleTalk administration. *atalkad* permits AppleTalk routing packets to be transmitted via UDP/IP packets. The AppleTalk routing tables are maintained on a UNIX machine and are downloaded into specified GatorBoxes.

Although using *atalkad* lets you configure many of the GatorBox configuration settings, *atalkad* does not provide support for configuring UNIX-to-LocalTalk printing or AppleShare-to-NFS file sharing. Additionally, *atalkad* use of *atalkad* still requires that you download the GatorBox operating software file and configuration files. Finally, *atalkad* will not work well in an AppleTalk Phase 2 environment. *atalkad* support will be most useful to sites using GatorSystem that prefer centralized network administration and that do not plan to make the transition to AppleTalk Phase 2.

TFTP INIT

In most situations, a Macintosh acting as a download server must be running GatorKeeper for a GatorBox to download its files. The TFTP INIT lets a Macintosh on the same LocalTalk network as your GatorBox use the AppleTalk protocols to respond to NBPLookups for device type TFTPServer and function as a download server, even when the Macintosh is not running GatorKeeper.



If you run GatorKeeper on a Macintosh on which the TFTP INIT has been installed, GatorKeeper will not advertise itself as a TFTP server.

UDP TFTP INIT

The UDP TFTP INIT lets a Macintosh on Ethernet use MacTCP and the TCP/IP protocols to act as a TFTP download server for your GatorBox. By setting up a Macintosh as a TFTP server on Ethernet, you can download operating software files and configuration files for one or more GatorBoxes from a central Macintosh. The UDP TFTP INIT requires MacTCP, which is provided on the GatorBox software disks.

Download scenarios

How you set up your download servers depends on the size and complexity of your internet. This section presents five scenarios for setting up your download servers:

- ▶ **Local Macintosh only** — You can download the operating software file (GatorSystem, GatorPrint, or GatorShare) and configuration information (GatorDatabase and *GatorBoxName*) from a Macintosh on the same LocalTalk network as the GatorBox.
- ▶ **Local and remote Macintosh** — You can download the operating software file from a Macintosh on the same LocalTalk network and download the GatorBox's configuration information from a Macintosh on a remote LocalTalk or EtherTalk network.
- ▶ **Ethernet Macintosh** — If you install the UDP TFTP INIT, you can download the operating software file and configuration information (GatorDatabase and *GatorBoxName*) from a Macintosh on your Ethernet network.

- ▶ **TFTP server only** — You can download the operating software file and configuration information from a UNIX host (or any computer that supports TFTP) by use of a TFTP (Trivial File Transfer Protocol) service.
- ▶ **TFTP server and remote Macintosh** — You can download the operating software file from a TFTP server and download the GatorBox's configuration information from a Macintosh on the same LocalTalk or EtherTalk network.



You must configure your GatorBox for the first time from a Macintosh on the same LocalTalk network. See "Local Macintosh as download server" on page 3-10 for instructions on how to download a GatorBox's operating software file and configuration settings from a local Macintosh.

Scenario 1 — Local Macintosh only

In the simplest scenario, you copy the GatorBox operating software file (GatorSystem, GatorPrint, or GatorShare) and configuration files (GatorDatabase and *GatorBoxName*) to a Macintosh on the same LocalTalk network as the GatorBox. Depending on how you define its download server settings, a restarted GatorBox searches its LocalTalk network for a specific Macintosh running GatorKeeper, any Macintosh running GatorKeeper, or a Macintosh with the GatorBox TFTP file in its System Folder. When it finds its download server, the GatorBox retrieves its operating software file and configuration information.

Figure 3-1 illustrates the scenario for downloading to a GatorBox from a local Macintosh. Note that the GatorBox TFTP INIT, GatorShare operating software file, and configuration files have been moved to the System Folder to permit downloading when GatorKeeper is not running.

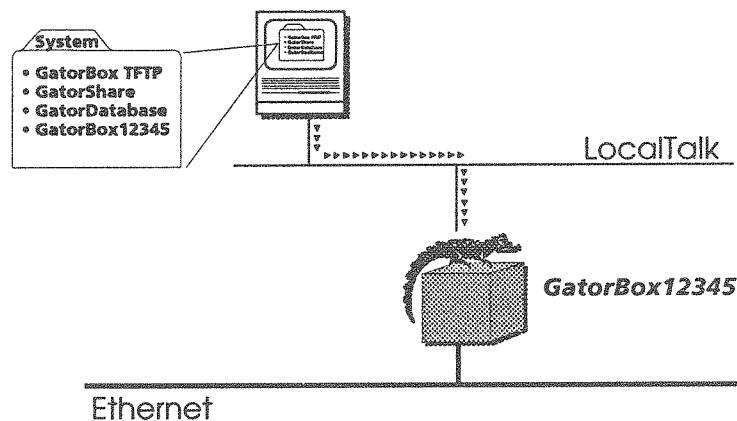


Figure 3-1. Downloading from a local Macintosh

Instructions for setting up a GatorBox to download its software from a local Macintosh are presented in “Local Macintosh as download server” on page 3–10.

Scenario 2 — Local and remote Macintoshes

One way to administer multiple GatorBoxes from a central location is to coordinate files on a local Macintosh with files on a remote Macintosh. Using a local Macintosh to download the GatorBox operating software file and a remote Macintosh to download configuration settings makes changing the configuration of GatorBoxes across a network much easier.

Figure 3-2 illustrates the scenario for downloading from a local Macintosh and a remote Macintosh. The remote Macintosh, which is connected to the EtherTalk network in Figure 3-2, could be on a remote LocalTalk network and still download the GatorBox's configuration information. Note that the GatorBox TFTP INIT and the GatorShare operating software file have been placed in the System Folder of the local Macintosh to permit downloading when GatorKeeper is not running.

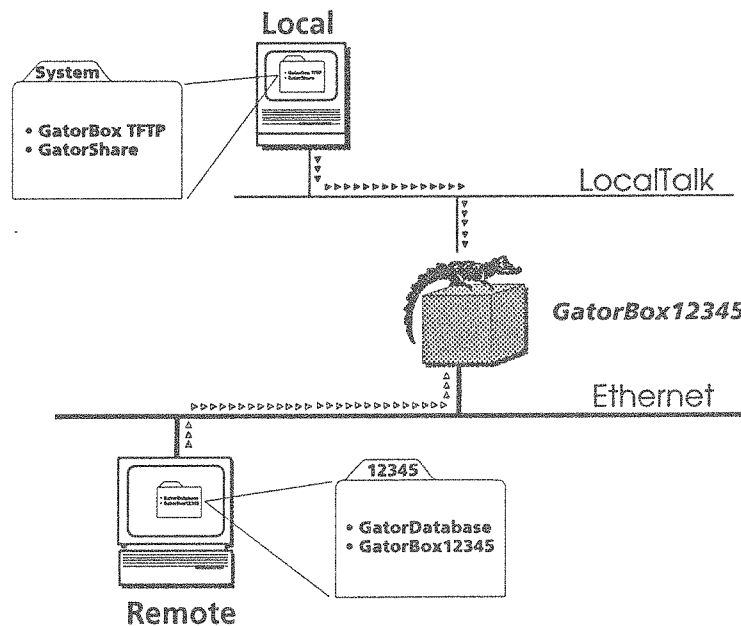


Figure 3-2. Downloading from a remote Macintosh

Instructions for setting up a GatorBox to download its software from local and remote Macintoshes are presented in “Local and remote Macintoshes as download servers” on page 3-12.

Scenario 3 — Macintosh TFTP server

As an alternative to setting up a download server on each LocalTalk network to which a GatorBox is connected, you can configure and administer several GatorBoxes from a central Macintosh on your Ethernet network. To do so, you copy the UDP TFTP INIT, the MacTCP CDEV, the GatorBox operating software file, and the GatorBox configuration files to a Macintosh on Ethernet. You then use GatorKeeper to specify that the GatorBox should download its software from the device with the Macintosh's IP address. When it restarts, the GatorBox retrieves its software and configuration information from the Macintosh via TFTP.

Figure 3-1 illustrates the scenario for downloading to a GatorBox from a Macintosh on Ethernet running the UDP TFTP INIT.

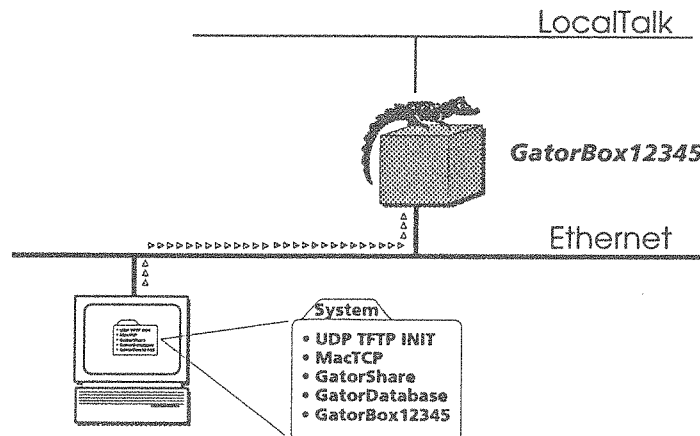


Figure 3-3. Downloading from a Macintosh TFTP server

Instructions for setting up a GatorBox to download its software from a Macintosh TFTP server are presented in “Macintosh as TFTP download server” on page 3-15.

Scenario 4 — UNIX TFTP server

As an alternative to storing your GatorBox software and configuration files on a local or remote Macintosh, you can place the files on a UNIX host (or any other host on your TCP/IP network that supports the TFTP protocol) and use it as a TFTP download server.

Figure 3-4 illustrates the scenario for downloading to a GatorBox from a TFTP server. Note that you must move the configuration files back to a Macintosh running GatorKeeper before you can modify them.

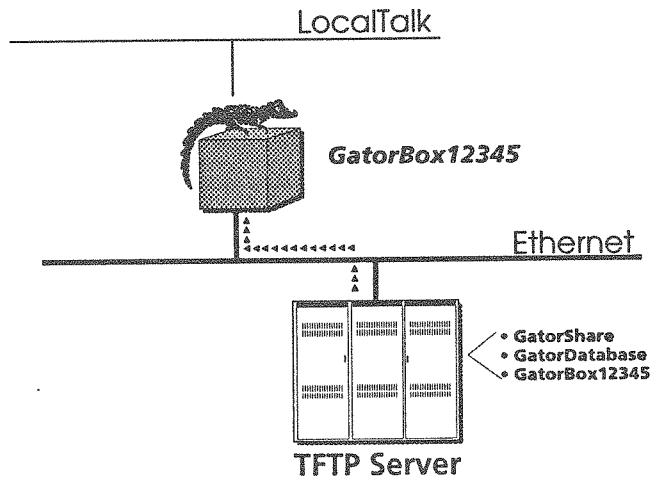


Figure 3-4. Downloading from a TFTP server

Instructions for setting up a GatorBox to download its software from a TFTP server on Ethernet are presented in “UNIX host as TFTP download server” on page 3-19.

Scenario 5 — TFTP server and remote Macintosh

If you want to configure and administer several GatorBoxes from a central Macintosh and you do not want to install the TFTP INIT on a Macintosh on each LocalTalk network connected to a GatorBox, you can combine TFTP service with remote Macintosh configuration. To do so, you store the operating software file on the TFTP server and the configuration files on the remote Macintosh.

Figure 3-5 illustrates the scenario for downloading to a GatorBox from a TFTP server and a remote Macintosh.

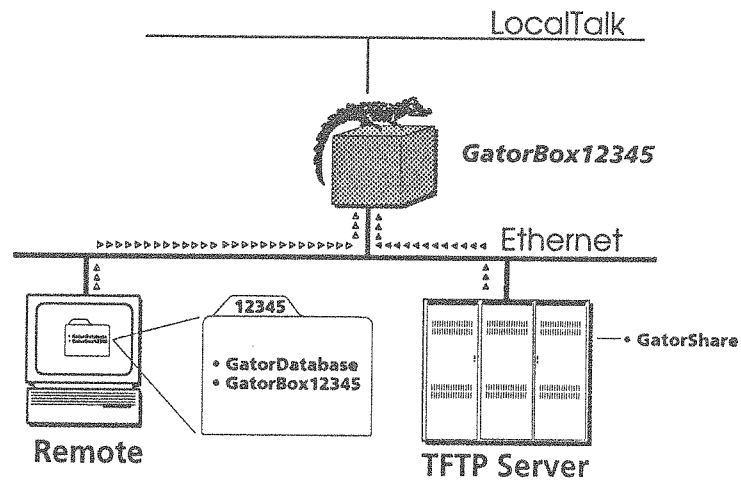


Figure 3-5. Downloading from a TFTP server and remote Macintosh

Instructions for setting up a GatorBox to download its operating software file from a TFTP server and its configuration settings from a remote Macintosh are presented in "TFTP server and remote Macintosh" on page 3-22.

Setting up the download server

You will need to run GatorKeeper to identify the download server(s) for your GatorBox. If you are running GatorKeeper for the first time, you will be asked whether you want to create the GatorDatabase and GatorDefaults files. Click the highlighted buttons or press Enter to indicate that you want to create both files.



Refer to the *GatorBox User's Guide* for more information on using GatorKeeper.

Local Macintosh as download server

To set up a Macintosh on the GatorBox's LocalTalk network as a download server:

1. **Copy the GatorBox operating software file (GatorSystem, GatorPrint, or GatorShare) and (optionally) the TFTP INIT from the Installation disk to the Macintosh you will use as a download server.**
 - ▷ If you are using the TFTP INIT, you must put the TFTP INIT, operating software file, and configuration files in the top level of the System Folder on the Macintosh.
 - ▷ If you are not using the TFTP INIT, you can put the operating software file and configuration files either in the same folder as the GatorKeeper application or in the top level of the System Folder on the Macintosh.
2. **Run GatorKeeper. Double-click the icon of the GatorBox you want to set up. When the Configuration Options window opens, double-click *Download Server*.**

GatorKeeper will display the Download Server dialog box (Figure 3-6).

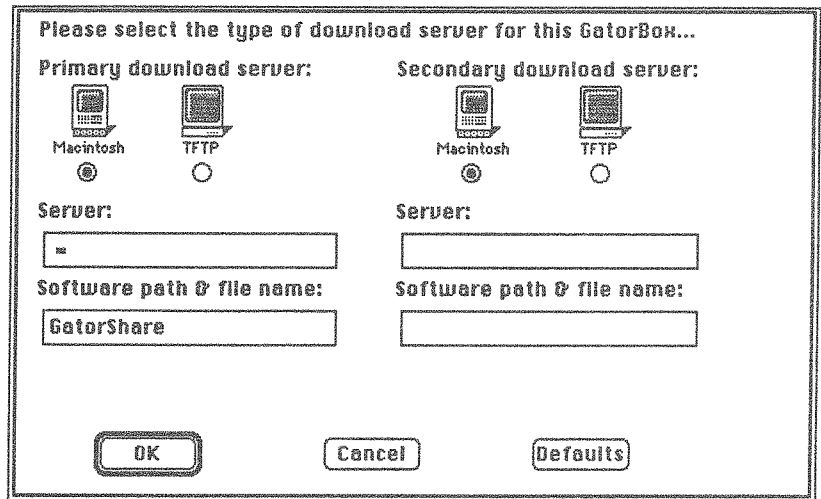


Figure 3-6. Setting up a local Macintosh as a download server

3. Click the *Macintosh* radio button on the left side of the Download Server dialog box to indicate that your primary download server is a Macintosh.
4. Enter either a Macintosh Chooser name or an equal sign (=) in the *Server* field.
 - ▷ If you enter a **Macintosh Chooser name**, the GatorBox will retrieve its operating software file and configuration files from the Macintosh on its LocalTalk network with that Chooser name.
 - ▷ If you enter an **equal sign**, the GatorBox will retrieve its operating software file and configuration files from any Macintosh on its LocalTalk network running GatorKeeper or the TFTP INIT.
5. Enter the file name of the GatorBox operating software file in the *Software path & file name* field.
 - ▷ If you have not renamed the operating software file, enter **GatorSystem**, **GatorPrint**, or **GatorShare**.
 - ▷ If you have renamed the operating software file, enter the file's new name in this field.

Local and remote Macintoshes as download servers

To set up a local Macintosh to download the GatorBox operating software file and a remote Macintosh to download the GatorBox configuration files:

1. **Configure the GatorBox from a local Macintosh to establish its initial settings.**

See “Local and remote Macintoshes as download servers” on page 3-12 for information on configuring your GatorBox from LocalTalk.

2. **Restart the GatorBox to load the new settings into its memory.**
3. **Remove the GatorDatabase and *GatorBoxName* files from the local Macintosh and move them to the remote Macintosh.**

You can put the files in the same folder as GatorKeeper or in the System Folder of the remote Macintosh.

4. **Run GatorKeeper on the remote Macintosh and view the zone to which the GatorBox belongs.**
5. **Double-click the icon of the GatorBox you want to set up. When the Configuration Options window opens, double-click *Download Server*.**

GatorKeeper displays the Download Server dialog box (Figure 3-7).

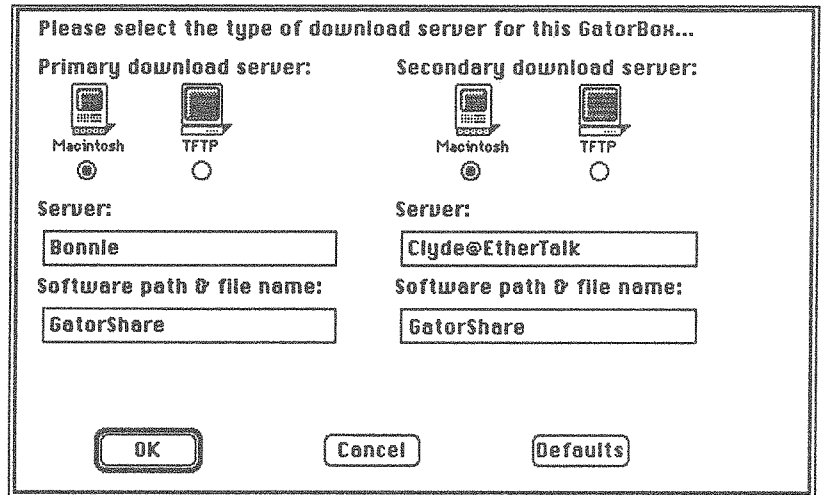


Figure 3-7. Setting up local and remote Macintoshes as download servers

6. Click the *Macintosh* radio buttons on the left and right sides of the Download Server dialog box to indicate that both your primary and secondary download servers are Macintoshes.
7. Enter a Macintosh Chooser name or an equal sign (=) in the *Server* field for the primary download server.
 - ▷ If you enter a **Macintosh Chooser name**, the GatorBox will retrieve its software and configuration files from the Macintosh on its LocalTalk network with that Chooser name. For example, Figure 3-7 indicates that the local Macintosh with Chooser name “Bonnie” will act as the primary download server.
 - ▷ If you enter an **equal sign**, the GatorBox will retrieve its software and configuration files from any Macintosh on its LocalTalk network running GatorKeeper or the GatorBox TFTP INIT.
8. Identify the Macintosh that will act as the secondary download server in the *Server* field on the right side of the dialog box.

The remote Macintosh must be identified by name and AppleTalk zone in *MacName@ZoneName* format. For example, Figure 3-7 indicates that

the Macintosh with Chooser name "Clyde" in zone "EtherTalk" will act as the secondary download server.

9. Save your changes and restart your GatorBox.

When the GatorBox restarts, it will retrieve its operating software file from its primary server by means of the GatorBox TFTP INIT. Because it cannot find its configuration files on the primary server, it will look for the secondary server (the remote Macintosh). The GatorBox will then retrieve its configuration files and finish downloading.

Macintosh as TFTP download server

Although you cannot use a Macintosh on EtherTalk (that is, a Macintosh communicating over the Ethernet network via AppleTalk protocols) to download a GatorBox operating software file, you can download the operating software file from a Macintosh on an Ethernet network (that is, a Macintosh that has its own IP address) running the UDP TFTP INIT. To set up a Macintosh on your Ethernet network as a TFTP server:

- 1. Install the GatorBox software and MacTCP.**

Copy the UDP TFTP INIT, the MacTCP CDEV, the GatorBox operating software file (GatorSystem, GatorPrint, or GatorShare), and the GatorBox configuration files (GatorDatabase and *GatorBoxName*) to the top level of the Macintosh's System Folder.

- 2. Configure MacTCP to assign the Macintosh a manual (static) IP address *outside* the GatorBox MacIP range.**

- a. Pull down the Apple menu and select *Control Panel*.**
- b. Click the MacTCP icon.**
- c. Click the *Ethernet* (not *EtherTalk*) icon in the MacTCP Control Panel to select your network connection.**
- d. Click the *More* button at the bottom of the MacTCP Control Panel.**
- e. Click the *Manually* button in the upper left corner of the MacTCP Administrator dialog box (Figure 3-8).**

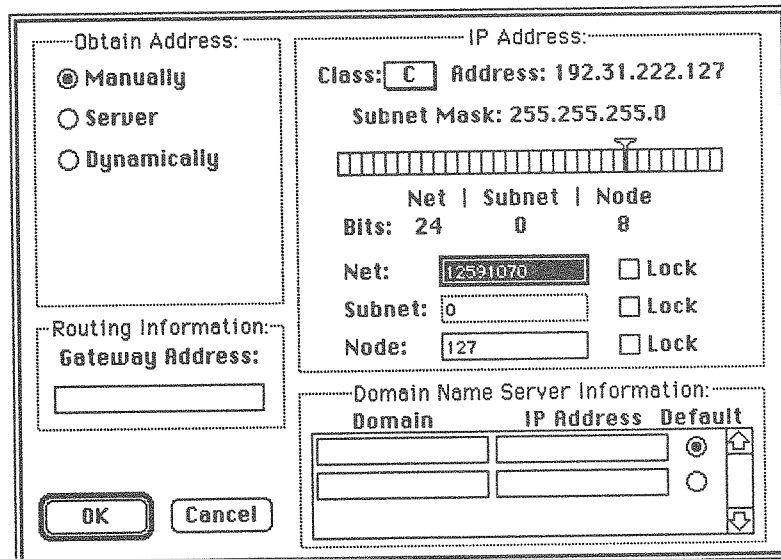


Figure 3-8. MacTCP Administrator dialog box

- f. Click the OK button.
- g. Enter the IP address for the Macintosh in the *IP Address* field of the MacTCP Control Panel.
- h. Close the Control Panel.
- i. Restart your Macintosh.

You can defer restarting the Macintosh until you have finished the GatorBox configuration.

3. Run GatorKeeper on the remote Macintosh and view the zone to which the GatorBox belongs.
4. Double-click the icon of the GatorBox you want to set up. When the Configuration Options window opens, double-click *Download Server*.

GatorKeeper will display the Download Server dialog box (Figure 3-9).

Please select the type of download server for this GatorBox...

Primary download server:

Macintosh TFTP

Server: ☐ **Retry Forever**

192.31.222.12

Software path & file name:

GatorShare

Path to Data Files:

/

Secondary download server:

Macintosh TFTP

Server:

Software path & file name:

Path to Data Files:

OK Cancel Defaults

Figure 3-9. Setting up a Macintosh TFTP server as a download server

5. Click the **TFTP** radio button on the left side of the Download Server dialog box to indicate that your primary download server (the Macintosh) is a TFTP server.
6. Optionally, click the **Retry Forever** checkbox.

The **Retry Forever** checkbox, which appears when you click the **TFTP** radio button for the primary download server, lets you specify that the GatorBox should continue trying to download its software and configuration information from the Macintosh TFTP server until it succeeds (or until a period of about eight hours elapses).

If you leave **Retry Forever** turned off, the GatorBox makes three attempts to download its files from the primary server when it starts up. If it is unsuccessful, it either download its software from the secondary server (if one has been defined) or report a status of Can't Download (if a secondary server hasn't been defined).

7. Enter the IP address of the Macintosh TFTP server in the **Server** field.

This must be the IP address you specified when you set up MacTCP for the Macintosh TFTP server.

8. Enter the file name of the GatorBox operating software file in the *Software path & file name* field.

- ▷ If you have not renamed the operating software file, enter **GatorSystem**, **GatorPrint**, or **GatorShare**.
- ▷ If you have renamed the operating software file, enter the file's new name in this field.

9. Enter a slash (/) character in the *Path to Data Files* field.

The slash character indicates that the GatorDatabase and GatorBoxName files are in the top level of the System Folder.

10. Save your changes and restart your GatorBox.

When it restarts, the GatorBox will retrieve its operating software file and configuration files from the TFTP server automatically.

UNIX host as TFTP download server

To set up a UNIX host as a TFTP server:

1. **Create a /tftpboot directory at the top level of the TFTP host file structure.**

The /tftpboot directory must be a world-readable directory.

2. **Add the tftp daemon to the /etc/inetd.conf file (Figure 3-10) and verify that TFTP service is enabled in the /etc/services file.**

```
#
# Tftp service is provided primarily for booting. Most sites
# run this only on machines acting as "boot servers."
#
tftp dgram udp wait root /usr/etc/in.tftpd in.tftpd /tftpboot
#
```

Figure 3-10. TFTP service entry in /etc/inetd.conf file

3. **Run GatorKeeper from a Macintosh on the GatorBox's LocalTalk network to configure its initial settings.**
4. **Restart the GatorBox to load its new settings into its memory.**
5. **Open the Download Server dialog box (Figure 3-11).**

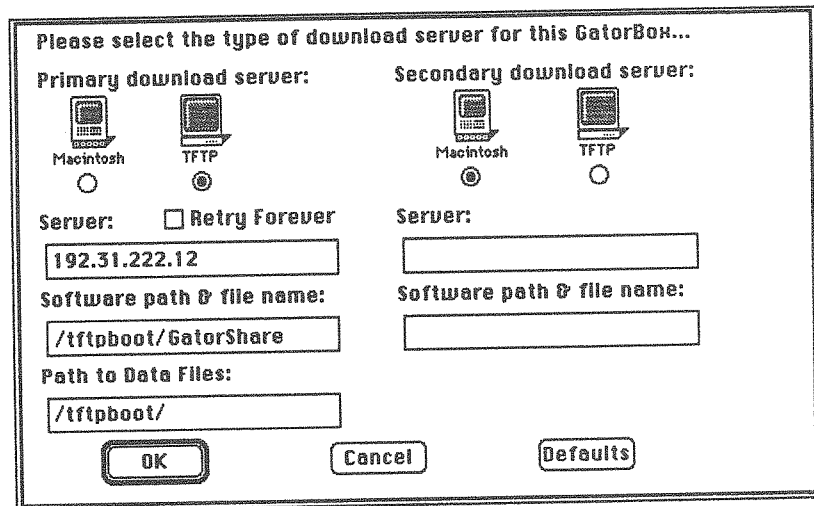


Figure 3-11. Setting up a TFTP server as a download server

6. Click the **TFTP** radio button on the left side of the Download Server dialog box to indicate that your primary download server is a TFTP server.
7. Optionally, click the **Retry Forever** checkbox.

The **Retry Forever** checkbox, which appears when you click the **TFTP** radio button for the primary download server, lets you specify that the GatorBox should continue trying to download its software and configuration information from the TFTP server until it succeeds (or until a period of about eight hours elapses).

If you leave **Retry Forever** turned off, the GatorBox makes three attempts to download its files from the primary server when it starts up. If it is unsuccessful, it either download its software from the secondary server (if one has been defined) or report a status of Can't Download (if a secondary server hasn't been defined).

8. Enter the IP address of the TFTP server in the **Server** field.

9. Enter the pathname and file name of the operating software file in the *Software path & file name* field.

If the operating software file is in the top level of the /tftpboot directory and you have not changed the name of the file, you can enter the name of the operating software file (GatorSystem, GatorPrint, or GatorShare) in the *Software path & file name* field. If the operating software file is in a subdirectory or another directory, or if you have changed the name of the file, enter its complete pathname in full "/path/to/file" format.



Some systems, such as Sun workstations, default to /tftpboot when a remote system attempts to perform a TFTP operation. Other systems, such as Macintoshes running A/UX, do not support the /tftpboot default convention, you may be required to enter a full "/path/to/file" name for the operating software file.

10. Enter the pathname to the GatorDatabase and *GatorBoxName* files in the *Path to Data Files* field.

The pathname to the GatorBox data files must begin and end with a slash (/) character.

11. Copy the GatorBox operating software file and configuration files to the /tftpboot directory on the TFTP server.

Use FTP in binary mode to transfer the files.

12. Save your changes and restart your GatorBox.

When the GatorBox restarts, it will retrieve its operating software file and configuration files from the TFTP server automatically.

TFTP server and remote Macintosh

To set up a TFTP server to download the operating software file and a remote Macintosh to download the GatorBox configuration files:

1. **If the TFTP server is a UNIX host, create a /tftpboot directory at the top level of the TFTP host file structure.**

The /tftpboot directory must be a world-readable directory.

2. **Add the tftp daemon to the /etc/inetd.conf file (Figure 3-10) and verify that TFTP service is enabled in the /etc/services file.**

```
#  
# Tftp service is provided primarily for booting. Most sites  
# run this only on machines acting as "boot servers."  
#  
tftp dgram udp wait root /usr/etc/in.tftpd in.tftpd /tftpboot  
#
```

Figure 3-12. Tftp service entry in /etc/inetd.conf file

3. **Configure the GatorBox from a local Macintosh to establish the GatorBox's initial settings.**
4. **Restart the GatorBox from the local Macintosh to load its new settings into its memory.**
5. **Open the Download Server dialog box (Figure 3-13).**

Please select the type of download server for this GatorBox...

Primary download server:

Macintosh ☐ TFTP ☒

Server: ☐ Retry Forever

192.31.222.12

Software path & file name:

/tftpboot/support/GShare

Path to Data Files:

/tftpboot/support/

Secondary download server:

Macintosh ☒ TFTP ☐

Server:

Clyde@EtherTalk

Software path & file name:

OK Cancel Defaults

Figure 3-13. TFTP server and remote Macintosh as download servers

6. Enter the settings for the primary (TFTP) server in the fields on the left side of the Download Server dialog box.

See “UNIX host as TFTP download server” on page 3–19 for information on setting up the TFTP server.

Because you want the GatorBox to retrieve its configuration files from a secondary server, do not click the *Retry Forever* checkbox.

7. Enter the Macintosh Chooser name (or an equal sign (=)) in the *Server* field on the right side of the Download Server dialog box.

If the Macintosh is on a remote network, you must enter its name and zone in *MacName@ZoneName* format. For example, Figure 3-13 indicates that the Macintosh with Chooser name “Clyde” in zone “EtherTalk” will act as the download server.

It is not necessary to enter the file name of the operating software file in the *Software path & file name* field for the secondary download server.

8. **Move the GatorBox operating software file to the /tftpboot directory on the TFTP server by using FTP in binary mode.**
9. **Move the GatorDatabase and *GatorBoxName* files to the appropriate folder on the Macintosh functioning as the secondary download server.**
10. **Save your changes and restart your GatorBox.**

When the GatorBox restarts, it will retrieve its operating software file from the TFTP server. Because it cannot find its configuration files on the primary server, it should look for the secondary server (the remote Macintosh). The GatorBox should then retrieve its configuration files and finish downloading.

Appendix A

GatorBox Specifications

Motherboard

LocalTalk daughtercard

Ethernet daughtercard

Size

Operating environment

Power input

Other



Motherboard

Processor:	Motorola MC68000, 10 MHz clock speed
Working data storage:	1 MB DRAM (Dynamic Random Access Memory)
Configuration storage:	2K NVRAM
Boot program storage:	128K EPROM (Erasable Programmable Read-Only Memory)

LocalTalk daughtercard

LocalTalk port:	Mini DIN-8 circular connector
Serial port (unsupported):	Mini DIN-8 circular connector



Ethernet daughtercard

Thin Ethernet port:	BNC connector to RG 58 coaxial "thin Ethernet" cable
Thick Ethernet port:	DB-15 connector for standard Ethernet transceiver

Size

Length:	10.5 inches (26.9 cm)
Width:	3.1 inches (8.0 cm)
Height:	10.25 inches (26.2 cm)
Weight - main unit:	4.25 lbs (1.93 kg)
Shipping weight:	7.75 lbs (3.52 kg)

Operating environment

Operating temperature:	10° C to 35° C 50° F to 95° F
Storage temperature:	-40° C to 47° C -40° F to 116° F
Relative humidity:	5% to 95% (non-condensing)
Altitude:	0 to 3028 m 0 to 10,000 ft

Power input

Voltage into GatorBox:	16 volts
Transformer:	Class 2
Maximum power:	40 watts
Maximum line current:	1.0 amp at 115 VAC

Other

FCC approval:	Class A
Safety certification:	DSG Nationally Recognized Testing Laboratory listed

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1. How do you use this manual: (Check one or more)

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|--|--|
| ☐ To get an overview of the product | ☐ To get out of trouble |
| ☐ To learn a task | ☐ Other _____ |
| ☐ To look up a fact | _____ |

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Manual?

Product?

- | | | | | | |
|--------------------------------|---------------------------------|---------------------------------------|--------------------------------|---------------------------------|---------------------------------------|
| ☐ Daily | ☐ Weekly | ☐ Infrequently | ☐ Daily | ☐ Weekly | ☐ Infrequently |
|--------------------------------|---------------------------------|---------------------------------------|--------------------------------|---------------------------------|---------------------------------------|

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5. Are the illustrations helpful, realistic, and easy to read?

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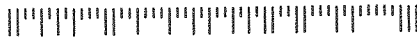
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7. Did you find any errors? (Please give page numbers) _____

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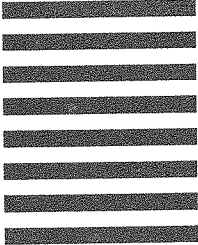
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|--|--|
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3. Is the information accurate, easy to find, and easy to read?

- ☐ Yes ☐ No _____

4. Are the examples helpful and realistic?

- ☐ Yes ☐ No _____

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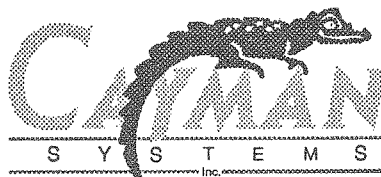
6. Is the index complete and accurate?

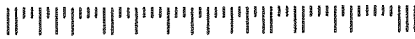
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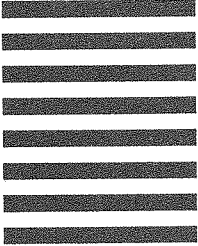




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Documentation

This manual was created using Microsoft Word and FrameMaker on a Macintosh SE/30 and a Macintosh IIfx. Art was produced using Adobe Illustrator and Claris MacPaint. Proof pages were produced using an Apple Personal LaserWriter. Final pages were produced using a LaserMax 1000ks Personal Typesetter. Typefaces for this manual are Adobe Stone Sans, Garamond, Courier, and Universal News.

Writing/Artwork: Michael McCoy

Editing: Nancy Rawlings

Product Development (original GatorBox team)

Hardware Development: Phil Hunt, Fan-Chia Tao

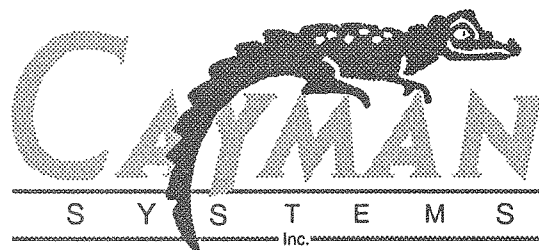
Software Development: Art Mellor, Beth Miaoulis, Brad Parker, Debbie Schwiegershausen, Ken Siegel, John Stephens, John Wroclawski

Manufacturing Process Development: Ina Bresner, Charles Crosby, John Drogo, Joe Geary

Quality Assurance: Karen Houldin

Technical Services: Michael Haag, Chris North, Throop Wilder

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