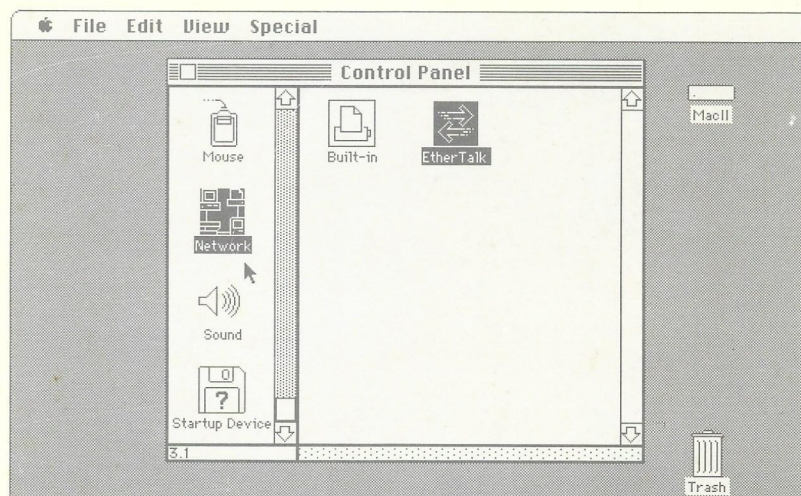




EtherTalk™ User's Guide



Apple® Macintosh™ EtherTalk

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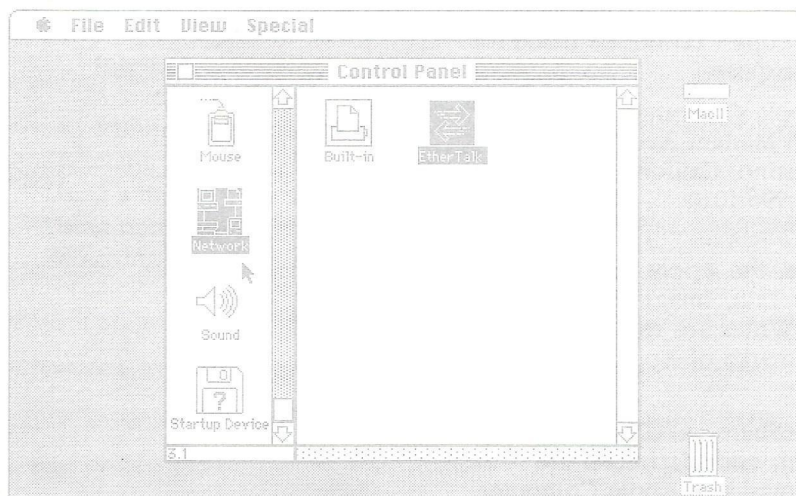
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Macintosh™

EtherTalk™

User's Guide



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Preface



Welcome to EtherTalk

EtherTalk™ is an AppleTalk® network. This means it uses the AppleTalk protocols, or rules for exchanging information, built into every Macintosh™ computer. The same protocols are used by other types of AppleTalk networks, such as the AppleTalk Personal Network (the first AppleTalk network).

Though all AppleTalk networks use the same AppleTalk protocols, they do not all use the same cables and connections. For instance, the AppleTalk Personal Network uses its own unique personal network cables and connects to any Macintosh printer port. EtherTalk uses the higher-performance coaxial cables of an **Ethernet** network and connects to EtherTalk Interface Cards installed in Macintosh II computers.

Ethernet is a communications network widely used in the computer industry.

❖ *EtherTalk on Macintosh Plus, Macintosh SE, and other devices:* Macintosh Plus and Macintosh SE computers can also be part of an EtherTalk network. They require additional software and hardware accessories (equivalent to EtherTalk Interface Cards) that allow the computers to be connected to Ethernet cables.

An EtherTalk network can also include devices besides Macintosh computers. For instance, there may be printers, file servers, or other computers on the EtherTalk network.

EtherTalk inherits advantages from both Ethernet and AppleTalk, including:

- EtherTalk transmits information significantly faster than an AppleTalk Personal Network.
- Up to 254 devices (computers, printers, file servers) can be concurrently active on an EtherTalk network, and more than a thousand can be connected to the same Ethernet cable. By comparison, the AppleTalk Personal Network allows at most 32 connected devices, all of which can be active.
- EtherTalk allows more concurrently active devices without degradation of performance than does an AppleTalk Personal Network.
- Many office buildings are already wired with Ethernet cables and won't need rewiring with AppleTalk Personal Network cables.
- Using EtherTalk has no effect on other uses of Ethernet cables. EtherTalk manages data flow so it can coexist on Ethernet cables with data from other types of networks.
- Once set up, EtherTalk is completely transparent to a Macintosh user. All network operations, such as gaining access to an AppleShare™ file server, appear as they would on any AppleTalk network (such as an AppleTalk Personal Network).



Chapter 1



Getting Started

This chapter describes how to set up your Macintosh II so it uses EtherTalk for fast AppleTalk communications over Ethernet cables. Each section of this chapter explains one of the five steps involved:

1. Verify that you have the necessary hardware and software. See “Check Your Equipment.”
2. Install EtherTalk software on a startup disk. See “Make an EtherTalk Startup Disk” for instructions.
3. Select EtherTalk for network communications. See “Select EtherTalk” for instructions.
4. Check that AppleTalk is active. See “Activate AppleTalk” for instructions.
5. Restart your Macintosh, using a startup disk that contains the EtherTalk software. See “Restart With an EtherTalk Startup Disk.”

Check your equipment

To use EtherTalk for network communications on your Macintosh II, you need the following hardware and software:

- ☐ your Macintosh II
- ☐ an EtherTalk Interface Card
- ☐ the *EtherTalk Installer for the Macintosh Operating System* disk, which comes with the card
- ☐ an installed network of Ethernet cables

For instructions on installing the card and connecting an Ethernet cable to it, see the *EtherTalk Interface Card* guide, which comes with the card.

- ❖ *A/UX™ not required:* You do not have to use the A/UX operating system with an EtherTalk Interface Card, as the *EtherTalk Interface Card* guide says. EtherTalk software lets you use EtherTalk Interface Cards with the Macintosh operating system.
- ❖ *EtherTalk on Macintosh Plus and Macintosh SE:* The EtherTalk software can be installed on a Macintosh Plus or Macintosh SE. However, the software is of no use unless the computer has an equivalent of an EtherTalk Interface Card, allowing it to be connected to an Ethernet cable.

A **startup disk** has all the system files you need to get your Macintosh started.

Make an EtherTalk startup disk

To use EtherTalk with the standard Macintosh operating system, you need a **startup disk** with the latest system files and EtherTalk software installed. The latest system files are on the *EtherTalk Installer* disk, including the latest versions of the System file, Finder™, Control Panel, and Chooser. The EtherTalk software and the Installer are also on that disk.

Important You must use EtherTalk with System file version 4.1 or later.

You make an EtherTalk startup disk by updating an existing startup disk or by creating a new startup disk. The startup disks you update or create may be hard disks or 3.5-inch disks.

- ☐ To update a disk you currently use to start your Macintosh, follow the instructions in the next section, "Update an Existing Startup Disk."
- ☐ To create a new EtherTalk startup disk using a blank disk, follow the instructions in the section "Create a New EtherTalk Startup Disk" later in this chapter.

Important Before using the *EtherTalk Installer* disk, make a copy of it as a safety precaution. Lock the copy and put it aside for use in the event the original disk becomes damaged.

Update an existing startup disk

You use the Installer on the *EtherTalk Installer* disk to update an existing startup disk with the EtherTalk software. The Installer makes many changes to your startup disk. If you're updating a 3.5-inch disk, use a Macintosh with two disk drives or you will have to swap disks.

Important Do not try to update a startup disk by dragging icons from the *EtherTalk Installer* disk to your startup disk. To successfully update an existing startup disk, you must use the Installer.

1. Restart your Macintosh using the *EtherTalk Installer* disk.

Shut down your Macintosh, insert the *EtherTalk Installer* disk, and switch on your Macintosh.

If you have an external hard disk, switch it on before you switch on your Macintosh.

❖ *Updating AppleShare servers:* Before you can update an AppleShare server, you must shut down the server as described in the *AppleShare Administrator's Guide*. Then restart the server's Macintosh using the *EtherTalk Installer* disk.

2. Open the icon that represents the *EtherTalk Installer* disk.

Either select the icon and choose Open from the File menu, or just double-click the icon. In the disk window are several icons, including the Utilities Folder.

3. Open the Utilities Folder.

The Installer will be in the Utilities Folder window.

4. Open the Installer.

Either select the Installer icon and choose Open from the File menu, or just double-click the icon.

5. Select the disk you want to update.

The Installer will update the disk named in the top-right corner of the dialog box. Click the Drive button until you see the name of the disk you want to update. If you're updating a 3.5-inch disk and haven't already inserted it, do so now. If the hard disk you want to update does not show up, try restarting your Macintosh.

6. Click EtherTalk to select it.

If the startup disk you're updating has not previously been updated to be a Macintosh II startup disk, Shift-click Macintosh II Installation to select it also.

As you select each item, the Installer checks the available disk space and informs you how much free space will be left on the disk after the update is complete. (This takes a few seconds for each selection.)

The Install button stays dimmed unless adequate space is available. If you're short of space, refer to your Macintosh owner's guide for help with claiming space on a startup disk. If you have a LaserWriter®, the *LaserWriter and LaserWriter Plus* guide also has suggestions for claiming space.

7. Click the Install button.

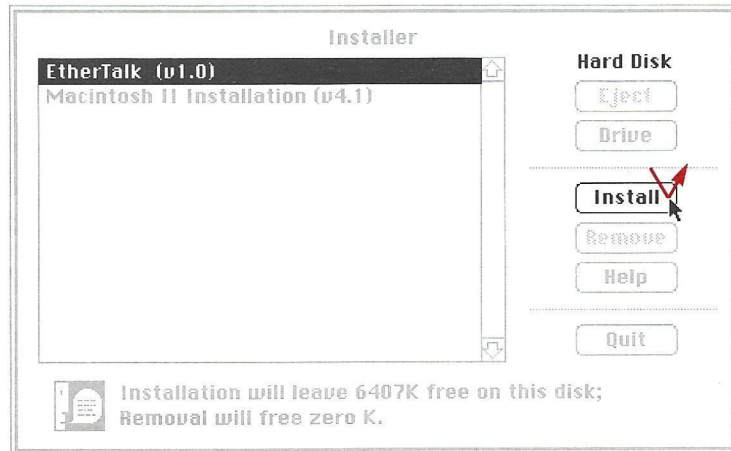


Figure 1-1
Updating a startup disk with EtherTalk

8. When the installation is complete, use Drive or Eject to switch to another startup disk and repeat the installation, or click Quit.

To continue setting up your Macintosh II so it uses EtherTalk for network communications, skip ahead to "Select EtherTalk."

Create a new EtherTalk startup disk

You create a new EtherTalk startup disk by copying the System Folder from the *EtherTalk Installer* disk to a blank disk. That System Folder contains the EtherTalk software and the Macintosh system software, all of which an EtherTalk startup disk needs.

1. Insert the *EtherTalk Installer* disk and switch on your Macintosh.

If you have an external hard disk, switch it on before you switch on your Macintosh.

If your Macintosh is already on, restart it using the *EtherTalk Installer* disk.

2. Open the icon that represents the *EtherTalk Installer* disk.

Either select the icon and choose Open from the File menu, or just double-click the icon. In the disk window are several icons, including the System Folder.

If you are creating a 3.5-inch startup disk and your system has only one disk drive (not counting hard disks), eject the *EtherTalk Installer* disk before going on to the next step, by choosing Eject from the File menu.

3. Use a new disk, or erase a used disk.

If you wish to create a new EtherTalk startup disk with a disk you have used before, erase that disk now. See your Macintosh owner's guide for information on erasing disks.

You may need to initialize a new hard disk before you can make it a startup disk. Follow the instructions in your hard disk owner's guide for initializing a hard disk for the first time. But do not copy a System Folder or any files from a System Folder to the new hard disk yet.

If you insert a 3.5-inch disk that isn't initialized for the Macintosh, you'll be asked if you want to initialize it at this time. See your Macintosh owner's guide for information on initializing disks.

4. Drag the System Folder from the EtherTalk Installer window to the new disk icon to copy it there.

If you are creating a 3.5-inch startup disk and your Macintosh has only one disk drive, you may need to swap disks a few times to complete the copying of the System Folder.

To continue setting up your Macintosh II so it uses EtherTalk for network communications, go on to the next section.

Select EtherTalk

Every Macintosh has a built-in connection to the AppleTalk Personal Network at its printer port. Initially, the Macintosh assumes it should use this built-in network connection.

If you use an EtherTalk startup disk when you start your Macintosh, then you can select EtherTalk for the network connection. You select EtherTalk with the Control Panel desk accessory.

1. Choose Control Panel from the Apple menu.

The Control Panel shows icons that represent parts of your computer system. Selecting an icon brings up a box of features for you to choose among.

2. Click the Network icon.

Use the scroll bar if necessary to bring the Network icon into view. If the Network icon is missing, see “Network Icon Missing” in Chapter 3 for a list of reasons and remedies.

When you click the Network icon, more icons appear. They represent the available choices for the AppleTalk network connection, including Built-in and EtherTalk. The Built-in icon represents the AppleTalk Personal Network, which connects to the computer’s printer port.

If your Macintosh II has more than one EtherTalk Interface Card installed, you will see a separate EtherTalk icon for each card. See “Multiple EtherTalk Networks” in Chapter 2 for more information.

- ❖ *Other icons:* If your Macintosh has network connection options besides Built-in and EtherTalk, their icons may show up in the Control Panel when you click the Network icon.

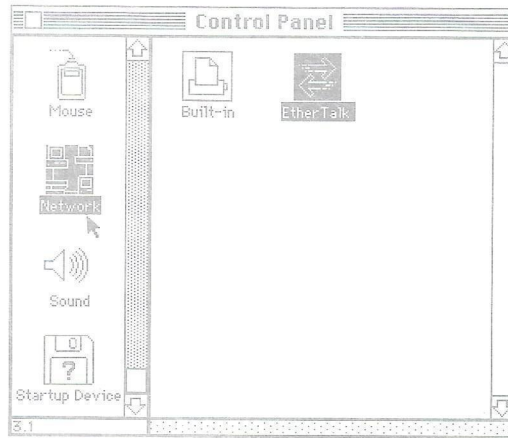


Figure 1-2
Selecting a network connection

3. Click the EtherTalk icon.

With few exceptions, EtherTalk remains your network connection until you change it. A few exceptions to this rule, such as removing the EtherTalk Interface Card, are described in "Switching the Network Connection" in Chapter 2.

- ❖ *Alert message:* An alert message may appear if your Macintosh has been used to access or to provide network services (printer, file server, electronic mail, and so on) since it was last started up. For explanations of specific messages, see "Messages" in Chapter 3.

To continue setting up your Macintosh II so it uses EtherTalk for network communications, go on to the next section.

Activate AppleTalk

Because EtherTalk uses AppleTalk protocols, AppleTalk must be active on your Macintosh. AppleTalk may already be active, especially if your Macintosh was part of an AppleTalk Personal Network. You check AppleTalk's status and activate it using the Chooser.

1. Choose Chooser from the Apple menu.

The Chooser shows icons for certain devices available to you (such as printers and AppleShare file servers) based on the resources of the startup disk.

2. Click Active, if it's not already selected.

When you click Active, a message may appear advising you to connect the AppleTalk cable to the printer port on your computer. This message does not apply if EtherTalk is your current network connection. However, be sure the Ethernet cable is connected to the EtherTalk Interface Card.

To continue setting up your Macintosh II so it uses EtherTalk for network communications, go on to the next section.

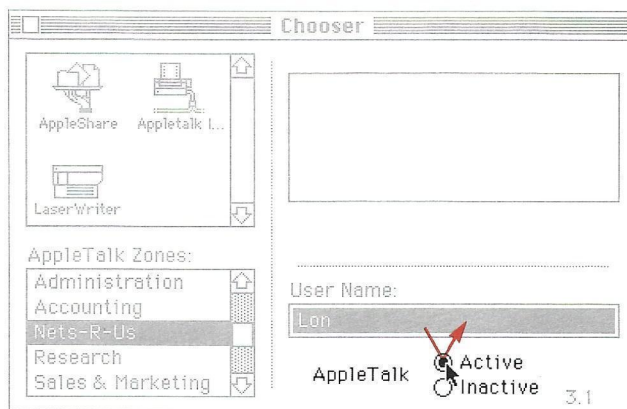


Figure 1-3
Activating AppleTalk

Restart with an EtherTalk startup disk

To begin using EtherTalk in your everyday work, restart your Macintosh II using an EtherTalk startup disk you have made. From now on, always start your Macintosh with an EtherTalk startup disk. Otherwise your Macintosh will revert to its built-in network, the AppleTalk Personal Network. (To use EtherTalk again, restart with an EtherTalk startup disk and reselect EtherTalk using the Control Panel. See "Select EtherTalk" in this chapter for details.)

Like most startup disks, EtherTalk startup disks can be set up so that certain network services are automatically available upon startup. For example, you can set up an EtherTalk startup disk so it automatically mounts one or more volumes from an AppleShare file server at startup time. For specific instructions on a particular service, consult its user's guide.



Chapter 2



Using EtherTalk

EtherTalk works behind the scenes to provide a higher-performance AppleTalk network. You access network services such as electronic mail or an AppleShare file server the same way you would on any AppleTalk network, regardless of the cables used to connect the network.

This chapter first discusses network organization. Then it describes how to switch among different networks, use network and non-network printers, and remove EtherTalk. For information about using specific network services, consult their user's guides.

Network configuration

An EtherTalk network may consist of a few computers and a file server connected by Ethernet cable. It may also be connected to other AppleTalk networks, with which it shares services.

Internets

Different AppleTalk networks can be interconnected by using bridges. A bridge allows information to cross between networks, so users on one network can access services on the other. Two or more networks interconnected by bridges are collectively called an internet.

An EtherTalk network is often part of an internet that includes one or more AppleTalk Personal Networks. An AppleTalk Personal Network has its advantages. For one, LaserWriter and AppleTalk ImageWriter® printers must be connected to an AppleTalk Personal Network. So must some Macintosh computers, such as the Macintosh 512K enhanced. Also, an AppleTalk Personal Network has ample performance and capacity for many local work groups. And an AppleTalk Personal Network costs significantly less per connection than an EtherTalk network.

Active device limit

You can connect more than a thousand devices to an Ethernet cable. However, only 254 of them (including bridges) can use EtherTalk at the same time. A Macintosh is considered to be using EtherTalk if AppleTalk is active in the Chooser and EtherTalk is selected for the network connection in the Control Panel.

If you try to connect to an EtherTalk network that has 254 users already connected, you won't be able to use any services from that network. When another user disconnects from the busy network, you should be able to connect.

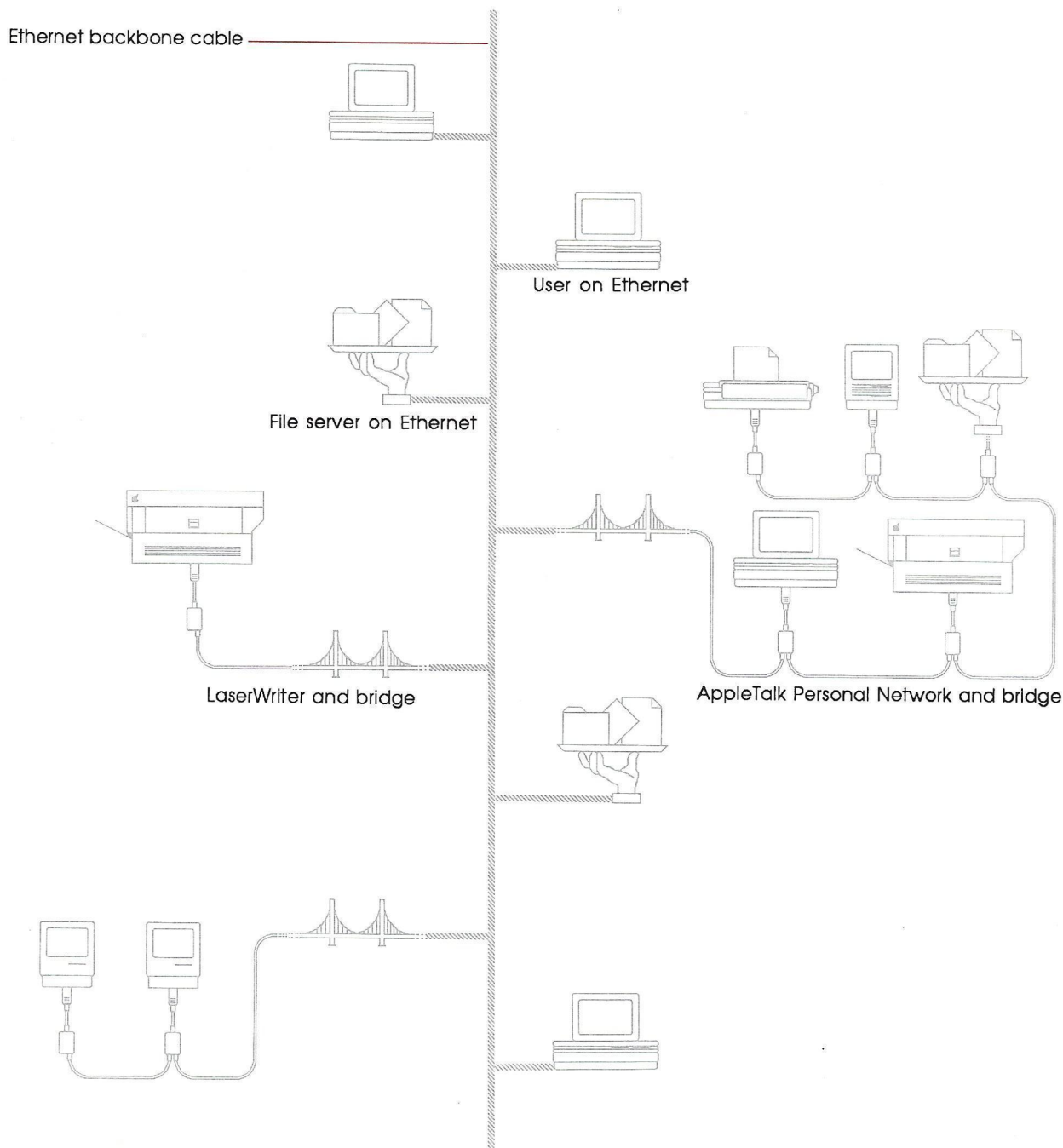


Figure 2-1
Multiple AppleTalk networks connected by bridges

Multiple networks

Your Macintosh can be directly connected to more than one AppleTalk network or internet. For instance, it can be connected to an EtherTalk network and to the built-in AppleTalk Personal Network.

In addition, your Macintosh can have more than one EtherTalk Interface Card installed, each connected to a different EtherTalk network. If it does, each card has its own EtherTalk icon in the Control Panel. A number in the icon name specifies the slot number of the EtherTalk Interface Card that the icon represents. Slots are numbered from 1 to 6 starting at the power supply.

You can remove an EtherTalk Interface Card while your Macintosh II is switched off. If you remove the card that was selected for the network connection, EtherTalk automatically picks another card when you restart your Macintosh. It uses the remaining EtherTalk Interface Card in the lowest numbered slot. (If there are no cards left, it switches to the built-in network connection, the AppleTalk Personal Network.)

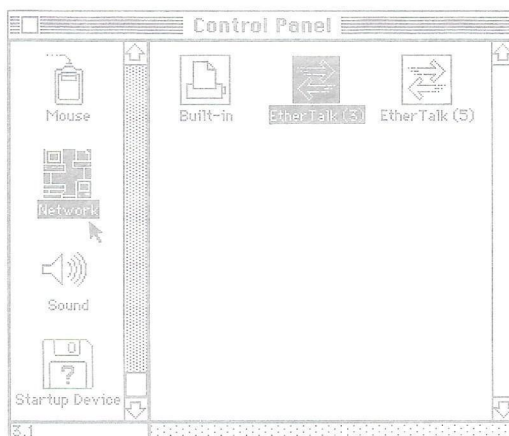


Figure 2-2
Each EtherTalk Interface Card has its own icon

Switching the network connection

Although your Macintosh can be connected to more than one network or internet, it can only use one AppleTalk network connection at a time. You change network connections by using the Control Panel.

- ❖ *Close the Chooser first:* If the Chooser is open when you switch the network connection in the Control Panel, the network services shown in the Chooser may not be updated. You must close the Chooser and reopen it to see the services of the newly selected network.

1. Choose Control Panel from the Apple menu.

2. Click the Network Icon.

A box of network connection icons appears. The one currently selected is highlighted.

3. Click the connection you want your Macintosh to use.

Every available network connection is represented by a separate icon. The Built-in icon represents the AppleTalk Personal Network. Each EtherTalk Interface Card installed in your Macintosh II has its own icon (see "Multiple Networks" in this chapter). If your Macintosh has other AppleTalk network connection options, their icons should appear too.

The network connection you select remains in effect until you change it. However, your Macintosh automatically changes the network connection under the following conditions:

- ☐ You start up without an EtherTalk startup disk. In this case, your computer reverts to its built-in network connection.
- ☐ You remove all EtherTalk Interface Cards. If you do, your computer reverts to its built-in network connection. Note, however, that disconnecting the Ethernet cable does not affect the network connection.
- ☐ You have more than one EtherTalk Interface Card installed and you remove the one you had selected in the Control Panel. In this case, your Macintosh II uses the EtherTalk Interface Card installed in its lowest numbered slot. (Slots are numbered from 1 to 6 starting at the power supply.)

Using a network printer

Printing is straightforward if all network printers are part of the same internet. In that case, you choose any printer using the Chooser in the usual manner. For instructions on using the Chooser to choose a printer, see your Macintosh owner's guide.

Your Macintosh may be connected to two or more separate internets, as explained in "Network Configuration" in this chapter. Because your Macintosh can only use one internet at a time, you cannot easily print a document from a file server on one internet using a printer on a completely separate internet.

1. Copy documents and applications to your own disk.

Make sure the documents you want to print, and the applications you need to print them, are on 3.5-inch disks, an internal hard disk, or a hard disk directly connected to your Macintosh.

2. Use the Control Panel to switch the network connection to the network with the printer you want.

Follow the instructions in "Switching the Network Connection" in this chapter.

3. Use the Chooser to choose the printer on which you want to print.

For instructions on using the Chooser to choose a printer, see your Macintosh owner's guide.

4. Print the documents.

5. Use the Control Panel to switch the network connection back.

Follow the instructions in "Switching the Network Connection" in this chapter.

Using non-network printers

The printer port serves as a connection point for either the built-in AppleTalk Personal Network or a peripheral device such as an ImageWriter. To use the printer port for an ImageWriter or another peripheral device, you must deactivate AppleTalk using the Chooser.

- ❖ *Using the modem port:* An ImageWriter and most other peripheral devices can also be connected to the modem port. You don't have to deactivate AppleTalk to use the modem port. You use the Chooser to select the modem port for an ImageWriter. See your Macintosh owner's guide for details.

1. Select Chooser from the Apple menu.

The Chooser shows the icons of printers you may choose, based on the resources of the current startup disk. It also shows whether the AppleTalk network is active or not.

2. Click Inactive.

A message advises you to disconnect your Macintosh from the AppleTalk network. If you have an AppleTalk Personal Network cable connected to the printer port, unplug it. If not, ignore the message. Do not remove the Ethernet cable from the EtherTalk Interface Card.

3. Click the icon of a non-AppleTalk printer to select it.

If no icon appears for the printer you wish to use, its **printing resource** is missing from the System Folder on the current startup disk. Either use the Installer to update the disk or restart your Macintosh with an EtherTalk startup disk that already has the printing resource you need. For more information, see your Macintosh owner's guide.

The Chooser does not show an icon for a non-printer device, such as a modem, that may be connected to the printer port. If you wish to use such a device, skip to step 5.

4. Click the icon representing the printer port, if it's not already highlighted.

By clicking the printer port icon, you tell your Macintosh to use the printer port for an ImageWriter.

5. Print your documents, or use the peripheral device connected to the printer port.

6. To resume using EtherTalk, reactivate AppleTalk using the Chooser.

For instructions, see "Activate AppleTalk" in Chapter 1.

A **printing resource** is a file that usually has the same name as the printer itself.

Removing EtherTalk from a startup disk

If you disconnect your Macintosh from EtherTalk indefinitely, you may wish to remove EtherTalk from your startup disks. Doing so makes more space available on the startup disk. (If you only want to switch temporarily to a different network connection, follow the instructions in "Switching the Network Connection" in this chapter.)

You can remove EtherTalk software from a startup disk using the Installer on the *EtherTalk Installer* disk. The Installer makes many changes to your startup disk. If you're updating a 3.5-inch disk, use a Macintosh with two disk drives or you will have to swap disks.

1. Insert the *EtherTalk Installer* disk and open the Installer.

If necessary, first open the disk icon, then the Utilities Folder icon, and finally the Installer.

- ❖ *AppleShare servers:* Before you can remove EtherTalk from an AppleShare server, you must shut down the server as described in the *AppleShare Administrator's Guide*. Then restart the server's Macintosh using the *EtherTalk Installer* disk.

2. Select the disk from which you want to remove EtherTalk.

The Installer will remove EtherTalk from the disk named in the top-right corner of the dialog box. Click the Drive button until you see the name of the disk you want to update. If you're removing EtherTalk from a 3.5-inch disk and haven't already inserted it, do so now.

3. Click EtherTalk to select it.

When you select EtherTalk, the Installer tells you how much space you'll gain with its removal.

The Remove button stays dimmed if the startup disk does not have EtherTalk installed on it.

4. Click Remove, and click Quit when you're finished.

The EtherTalk software is removed from the startup disk. When you start up using this disk, you will no longer be able to use EtherTalk for your network connection.



Chapter 3



Troubleshooting

This chapter lists common problems you may encounter and messages you may see when you use or try to use EtherTalk, and offers solutions. It also tells you how to check your network for cable problems that can disrupt service to one or more network users.

If your problem isn't described here, it may be specific to a device or service you're trying to access on the network. Check the troubleshooting section or chapter in the owner's or user's guide for the device or service.

Problems and solutions

Most problems you may encounter will have to do with your startup disks—the result of the wrong version of the System file, improperly installed EtherTalk software, or a current startup disk that doesn't have EtherTalk software installed on it. You can usually solve these problems by restarting with a startup disk that has EtherTalk correctly installed.

Can't switch network connection

When you change the network connection, a message may alert you that the connection cannot be changed now. This means that making the change would disrupt either a service (such as an AppleShare server) that your computer provides or an essential network service your computer is using.

First, quit all applications, and try switching the network connection again. If that doesn't work and you wish to disrupt service, you must shut down the Macintosh. Be sure to use the Shut Down command, or if the Macintosh is a server, to follow the shutdown instructions in the server administrator's guide. Then restart using an EtherTalk startup disk that doesn't automatically access services that prohibit network connection changes. (The *EtherTalk Installer* disk is such a startup disk.) Finally, select a different network connection in the Control Panel.

Network service missing

If you cannot access any network services, the network cable may not be correctly connected to the EtherTalk Interface Card in your Macintosh. In particular, the jumper on the card may be set for the wrong type of Ethernet cable. See the *EtherTalk Interface Card* guide for more information.

There may already be 254 EtherTalk devices active on the network. Try again when fewer devices are active.

If you cannot access one particular service, the service may be malfunctioning, switched off, or disconnected from the network. There may also be trouble in the network cables between your Macintosh and the missing service. For help inspecting the network, see "Checking the Network" in this chapter.

If you switch the network connection in the Control Panel while the Chooser is also open, the network services shown in the Chooser may not be updated. You must close the Chooser and reopen it to see the services of the newly selected network.

Network icon missing

If the Network icon isn't present in the Control Panel, then one of the following is the problem:

- ☐ You don't have EtherTalk software installed on the current startup disk. See "Make an EtherTalk Startup Disk" in Chapter 1.
- ☐ The Network icon has been moved from your System Folder. Find the Network icon, drag it back into the System Folder, and restart your Macintosh.

- Your startup disk has the wrong version of the Control Panel. You must use version 3.1 or later. (The version number appears in the bottom-left corner of the Control Panel.) Go through the steps in “Make an EtherTalk Startup Disk” in Chapter 1 to ensure that your startup disk has the latest version of the Control Panel.

EtherTalk icon missing

If the EtherTalk icon isn't present after you click the Network icon in the Control Panel, then one of the following is the problem:

- You don't have EtherTalk software installed on the current startup disk. See “Make an EtherTalk Startup Disk” in Chapter 1.
- The EtherTalk icon has been moved from your System Folder. Find the EtherTalk icon, drag it back into the System Folder, and restart your Macintosh.
- There is no EtherTalk Interface Card in your Macintosh, or the card is not working properly. Install one according to the instructions in the *EtherTalk Interface Card* guide.

Can't select Network icon

When you click the Network icon in the Control Panel, you may get a message advising you that the network package has not been installed correctly. This means that the EtherTalk software has not been installed properly on the startup disk last used to start your Macintosh. You must install EtherTalk software using the Installer program on the *EtherTalk Installer* disk. You cannot simply drag the Network icon from the *EtherTalk Installer* disk to the System Folder on your startup disk. See “Make an EtherTalk Startup Disk” in Chapter 1.

Can't select EtherTalk icon

When you click an EtherTalk icon in the Control Panel, you may get a message advising you that an error occurred while trying to install EtherTalk. This situation is unlikely, but can occur if you did not start your Macintosh with an EtherTalk startup disk, or the disk you used has become damaged. Try reinstalling EtherTalk (see “Make an EtherTalk Startup Disk” in Chapter 1) or restarting with another EtherTalk startup disk.

EtherTalk missing on startup

If your Macintosh has trouble putting the EtherTalk software in its memory at startup time, a message advises you that “the alternate AppleTalk” (that is, EtherTalk) could not be installed. The Macintosh automatically reverts to its built-in network connection, the AppleTalk Personal Network. Several situations can cause this problem:

- The EtherTalk icon has been moved from your System Folder. Find the EtherTalk icon, drag it back into the System Folder, and restart your Macintosh. If you can’t find the EtherTalk icon, reinstall it by following the steps in “Make an EtherTalk Startup Disk” in Chapter 1.
- There is no EtherTalk Interface Card in your Macintosh, or the card is not working properly. Install one according to the instructions in the *EtherTalk Interface Card* guide.
- The System file is damaged, or the installation of EtherTalk software on the startup disk was unsuccessful. Try installing again as described in “Make an EtherTalk Startup Disk” in Chapter 1, or try another EtherTalk startup disk.

Because your Macintosh has reverted to its built-in network connection, you must reselect EtherTalk in the Control Panel (after correcting the problem). See “Select EtherTalk” in Chapter 1.

Chooser missing

The Chooser is present on all EtherTalk startup disks unless it has been intentionally removed by using the Font/DA Mover. The Chooser may not be present on other startup disks, especially those with versions of the System file earlier than 3.3.

If you’re using more than one startup disk, your Macintosh may switch to one without the Chooser installed. To determine which is the current startup disk, look at the icon in the top-right corner of the desktop. That icon always represents the current startup disk.

When you use the Installer to install the system update from the *EtherTalk Installer* disk, the Chooser is automatically installed correctly. See “Make an EtherTalk Startup Disk” in Chapter 1.

Do not use the Font/DA Mover to remove the Chooser from an EtherTalk startup disk.

Chooser won't open

If you used the Font/DA Mover to put the Chooser on a startup disk, you may get a message telling you that the Chooser is not correctly installed. When you use the Installer to install Macintosh II Installation from the *EtherTalk Installer* disk, the Chooser is automatically installed correctly. See "Make an EtherTalk Startup Disk" in Chapter 1 for instructions.

Control Panel missing

The Control Panel is present on all startup disks unless it has been intentionally removed by using the Font/DA Mover. If you're using more than one startup disk, your Macintosh may switch to one without the Control Panel installed. To determine which is the current startup disk, look at the icon in the top-right corner of the desktop. That icon always represents the current startup disk.

When you use the Installer to install the system update from the *EtherTalk Installer* disk, the Control Panel is automatically installed correctly. See "Make an EtherTalk Startup Disk" in Chapter 1 for instructions.

Do not use the Font/DA Mover to remove the Control Panel from an EtherTalk startup disk.

Macintosh hangs

Your Macintosh may hang for a minute or so if it's not correctly connected to the Ethernet cable, and you won't be able to access any network services. See "Checking the Network" in this chapter and the *EtherTalk Interface Card* guide for more information.

Messages

This section lists messages you may see when switching the network connection, when starting up with an EtherTalk startup disk, or while using an EtherTalk network. It explains each message in more detail and suggests remedial action.

- **Access to current network services will have to be re-established. Are you sure you want to change the AppleTalk connection?** When you select a different network connection in the Control Panel, current network services (printer, file server, electronic mail, and so on) are automatically disconnected. You may have to restart your Macintosh before you can reestablish some services, since many applications establish network services at startup time.
- **AppleTalk is currently in use. It cannot be changed at this time.** You cannot change the network connection in the Control Panel if doing so would disrupt either a service your computer provides (such as an AppleShare server) or an essential service your computer uses.

First, quit all applications, and try switching the network connection again. If that doesn't work and you wish to disrupt service, you must shut down the Macintosh. Be sure to use the Shut Down command, or if the Macintosh is a server, to follow the shutdown instructions in the server administrator's guide. Then restart using an EtherTalk startup disk that doesn't automatically access services that prohibit network connection changes. (The *EtherTalk Installer* disk is such a startup disk.) Finally, select a different network connection in the Control Panel.

- **An error occurred while trying to install the alternate AppleTalk. The built-in network will be used instead.** Your Macintosh had trouble retrieving EtherTalk software from the EtherTalk startup disk. It reverted to its built-in network connection, the AppleTalk Personal Network. This can happen when switching the network connection or at startup time for two reasons:
 - The Macintosh could not find an EtherTalk Interface Card. Make sure you have a card installed (see the *EtherTalk Interface Card* guide).
 - Perhaps you did not start your Macintosh with an EtherTalk startup disk, or the disk you used has become damaged. Try another EtherTalk startup disk or reinstall the EtherTalk software. See "Make an EtherTalk Startup Disk" in Chapter 1.

- **The alternate AppleTalk driver could not be found. The built-in network will be used instead.** The Macintosh could not find the EtherTalk icon in the System Folder of the startup disk at startup time. It uses the built-in network connection instead.

Find the EtherTalk icon and drag it back into the System Folder. Then restart your Macintosh. If you can't find the EtherTalk icon, reinstall it by following the steps in "Make an EtherTalk Startup Disk" in Chapter 1.

After replacing the EtherTalk icon in the System Folder and restarting, select EtherTalk for network communications using the Control Panel. See "Select EtherTalk" in Chapter 1.

- **The Network software has not been installed correctly. Be sure to use the Installer and then restart.** At startup time, the Macintosh found the Network icon in the System Folder, but did not find the rest of the EtherTalk software. As a result, the Control Panel could not handle network connection options correctly. You must install EtherTalk software using the Installer program on the *EtherTalk Installer* disk. You cannot simply drag the Network icon from the *EtherTalk Installer* disk to the System Folder on your startup disk. Follow the instructions in "Make an EtherTalk Startup Disk" in Chapter 1.
- **An error occurred while reading a resource... Please reinstall the Network software.** Part of the EtherTalk software is unreadable on the current startup disk. The System file may be damaged. Try removing and then reinstalling the EtherTalk software (see "Removing EtherTalk From a Startup Disk" in Chapter 2 and "Make an EtherTalk Startup Disk" in Chapter 1) or restart your Macintosh with a different EtherTalk startup disk.

Checking the network

Problems often occur in a network after you've changed it in some way. Here's a checklist to consult whenever you're having trouble with the network.

- **Cables secure?** Make sure the network cable to your Macintosh is secure at both ends. Also check the network cable to the service that you're trying to use. Try replacing the cables with known good ones.

- **Device on and ready?** Someone may have inadvertently disconnected or switched off a device. Or, the problem may be related directly to the device. For example, a LaserWriter takes about two minutes to warm up, and an ImageWriter's green Select light must be on for AppleTalk access.
- **Trouble specific to application or device?** Sometimes what seems to be a network problem is actually trouble with the device or application program you're using. The manual for the device or application may be helpful.
- **Device on your network?** You may have more than one network in your area. Follow the cable from your computer to the device you're trying to use to see if they're on the same network. Be sure to use the Control Panel to select the proper network connection (see "Switching the Network Connection" in Chapter 2).
- **EtherTalk Interface Card OK?** Shut down your Macintosh and make sure the EtherTalk Interface Card is firmly seated in its socket. Make sure the jumper on the card is correctly set for your type of Ethernet cable. The *EtherTalk Interface Card* guide describes the jumper settings and cable types in detail.
- **Device ID conflict?** If a device is switched on and isn't connected to the network, it can't know which AppleTalk identification numbers other devices have chosen. If you later connect the device to the network, it may choose a number that's being used by another device (a rare occurrence). Neither device can use the network until one of them is disconnected and reconnected, or switched off and on. To ensure proper network operation, always turn off a device before connecting the network cable to it.
- **Network configuration OK?** The Ethernet backbone cable must be terminated at both ends. The cable must not be connected in a loop.



Glossary



AppleTalk: The network communication protocols built into every Macintosh and LaserWriter.

AppleTalk Personal Network: An AppleTalk network connected by AppleTalk Personal Network cables. Compare **EtherTalk**.

AppleShare file server: A file server that consists of a Macintosh computer, AppleShare software, and one or more hard disks.

application: A computer program designed for a specific purpose, such as word processing, data base management, graphics, or telecommunication.

backbone: A cable used as a trunk for interconnecting other networks or devices.

bridge: A device that allows data to cross between two AppleTalk networks, such as an AppleTalk Personal Network and an EtherTalk network.

cable: An insulated bundle of wires with connectors on the ends. Examples are AppleTalk Personal Network cables and Ethernet cables.

card: A removable printed-circuit board that plugs into one of a computer's **slots**, allowing the computer to use a peripheral device or to perform some subsidiary or peripheral function. An EtherTalk Interface Card allows a Macintosh II to connect to an EtherTalk (or Ethernet) network.

Chooser: A desk accessory that lets you activate and deactivate AppleTalk and lets you choose network services.

connector: A plug, socket, jack, or port.

Control Panel: A desk accessory that lets you change the network connection and other Macintosh features.

current startup disk: The disk that contains the system files the computer is currently using. The current startup disk icon always appears in the upper-right corner of the desktop.

data: Information, especially information used or operated on by an application.

desk accessories: Special applications that are available from the Apple menu while you're using another application.

device: A piece of equipment such as a Macintosh, LaserWriter, AppleTalk ImageWriter, or file server.

document: Whatever you create with an application—information you enter, modify, view, or save. See also **file**.

Ethernet: A communications network widely used in the computer industry.

EtherTalk: An AppleTalk network connected by Ethernet cables. Compare **AppleTalk Personal Network**.

file: Any named, ordered collection of information stored on a disk. Documents, applications, and system files are all files.

file server: A device that allows users to store and share documents, folders, and applications over a network. See also **AppleShare file server**.

Finder: The standard application you use to open applications and documents and to manage disks, folders, and files.

Font/DA Mover: An application available on the *System Tools Disk* that allows you to add or remove fonts and desk accessories from a disk's System file.

hang: To cease operation because an unexpected condition occurs.

hard disk: A disk permanently sealed into a drive or cartridge. A hard disk can store very large amounts of information compared with a **3.5-inch disk**.

initialized disk: A disk that has been organized into tracks and sectors by the computer and is therefore ready to store information.

installation: The process of adding or changing information in the System Folder or System file of a disk. For example, the Installer on the *EtherTalk Installer* disk installs EtherTalk software and updates the system files.

internet: Two or more networks interconnected by bridges. Networks in an internet can share information and services.

locked disk: A 3.5-inch disk with the small tab slid toward the edge of the disk.

modem: Short for *modulator/demodulator*. A peripheral device that links your computer to other computers and information services using the telephone lines.

modem port: The socket on the back of the Macintosh marked by a telephone icon.

network: A collection of interconnected, individually controlled computers and peripheral devices, together with the hardware and software used to connect them. A network allows users to share peripheral devices such as printers and file servers, to exchange electronic mail, and so on.

operating system: A program that organizes the actions and the parts of the computer and its peripheral devices.

peripheral device: A piece of hardware—such as a printer, modem, or disk drive—used in conjunction with a computer and under the computer's control.

printer port: The socket on the back of the Macintosh marked by a printer icon. In addition to being a connection for a printer, it also serves as the attachment point for the AppleTalk Personal Network.

printing resource: A system file that lets you print on a corresponding printer attached to your Macintosh or an AppleTalk network. Sometimes called a printer driver.

protocol: A formal set of rules for sending and receiving information on a communication line.

server: A device that serves more than one user on a network. See also **file server**.

Shift-click: To select additional items by holding down the Shift key while clicking.

slot: A narrow socket inside the computer where you can install **cards**. On a Macintosh II, slots are numbered from 1 to 6 starting at the power supply.

startup disk: A disk with all the system files you need to get your Macintosh started. Compare **current startup disk**.

System file: A file the computer uses to start up and to provide system-wide information.

3.5-inch disk: A flexible, plastic disk measuring 3.5 inches in diameter and having a hard-shell plastic jacket. Compare **hard disk**.

troubleshoot: To locate and correct an error or the cause of a problem or malfunction in hardware or software.

workstation: A Macintosh that you can use to send or receive information on a network.

zone: A group of AppleTalk networks within an internet.



THE APPLE PUBLISHING SYSTEM

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