



Support News 

July 25, 1994

Volume I, Issue 7

“Get Off the Highway  
and Into the Alley™”

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# Inside Information...

## About the Information Alley

The Information Alley™ is a publication of Apple Computer, Inc., Support Information Services. It is available to all Apple customers and computer users through a variety of on-line services and direct email capability. The goal of the Information Alley is to help Apple computer users get full use of their Apple computers, peripherals, and software.

Articles chosen for the Information Alley come from many sources, both from inside Apple Computer and from our customers and users. Sources include the Technical Information Library, Apple Assistance Center, New Technology Group, World Wide Product Technical Support, Apple Users Groups, and other technical groups and organizations.

## Submissions and Letters to the Information Alley

We welcome articles that help Apple computer users become more knowledgeable about the functionality of their systems, explain or illustrate complex features or functions, or that describe technical tips or techniques. Send submissions to:

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We also welcome letters to the editor and suggestions for future articles. Please send all letters to the preceding address.

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The Information Alley is produced using FrameMaker 4.0 on a Macintosh Quadra 610 running System 7.1.2.

## Published bi-weekly by

**Apple Computer, Inc.**  
**Support Information Services**  
**1200 East Anderson Lane**  
**MS: 212-STI**  
**Austin, TX 78752**  
**(512) 908-8975**

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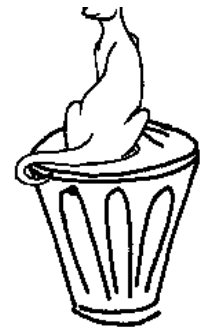
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# **Keeping Track of the Information Alley**



By Janet Christian

## **Master Index and Source List Now Available**

With an ever increasing number of back issues of the Information Alley, and an ever increasing number of locations where the Alley can be found, even I was having trouble keeping track of it all. Therefore, to make it easier for all of us, there are now two articles in the Technical Information Library (and available via the Apple Fax at 800/505-0171) that provide this information. One is titled Information Alley: Online Services It Is Posted To and the other is Information Alley: Index of Past Issues. Both are regularly updated with new information.

## **Known Viruses Article**

As a follow-up to last issue's article about computer viruses, this issue includes a list, by John Norstad, Academic Computing and Network Services, Northwestern University, of all known Macintosh viruses. This list is excerpted from the Disinfectant 3.5 Manual, provided online with the Disinfectant virus detection and protection software. John Norstad developed Disinfectant, which is available for free from a variety of sources. For more information about Disinfectant, contact:

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We thank Mr. Norstad for his permission to include this virus information in the Information Alley.

This article begins on page 4. Even though it is 6 pages long it still only scratches the surface of the wonderful information in the Disinfectant manual.

## **Printing Problems**

Some of you had difficulty printing previous issues of the Information Alley. We worked with No Hands Software to determine when, why, and what system configurations had difficulty printing a Common Ground document. This issue uses a new version of Common Ground that includes an improved print function. If you still have difficulty printing, check to see if your printer uses a non-Adobe PostScript interpreter. If so, please contact your printer manufacturer. You are also welcome to contact No Hands Software by phone at 415/802-5820 or by email at [nohands@netcom.com](mailto:nohands@netcom.com), [nohands@aol.com](mailto:nohands@aol.com), or [nohands@applelink.apple.com](mailto:nohands@applelink.apple.com). We appreciate your continuing feedback and suggestions.

## **Special System 7.5 Issue**

Next issue (to be published on August 8) is a "focus" issue, dedicated to the new System 7.5. You will find the issue packed with facts, feature descriptions, and questions and answers.

## **Alternate Route**

The Alternate Route is on vacation this issue. Watch for it again in issue 8. 🍏

# Known Macintosh Viruses

By John Norstad

The following are the known Macintosh viruses as of April 2, 1994.

## **The Scores Virus**

Discovered in the Spring of 1988. Scores is also sometimes known as the "Eric", "Vult", "NASA", and "San Jose Flu" virus.

To see if you have a Scores infection, open your System folder and check the icons for the Note Pad and Scrapbook files. They should have distinctive icons under System 7, or look like little Macintosh computers under System 6. If they look instead like blank sheets of paper with turned-down corners, your software may be infected. It is possible to be partially infected by Scores and still have normal Note Pad and Scrapbook icons.

Scores infects your System, Note Pad, and Scrapbook system files, as well as applications. It also creates two invisible files in your System folder named Scores and Desktop. You cannot see invisible files without the aid of ResEdit or some other utility program. Do not confuse Scores' invisible Desktop file with the Finder's invisible Desktop file; they have nothing to do with each other. The Finder's Desktop file lives at the root level on your disk, outside the System folder, while Scores' Desktop file lives inside the System folder. Also, Scores' Desktop file has an extra space character at the end of its name.

Two days after your system becomes infected, Scores begins to spread to each application you run. The infection occurs between two and three minutes after you begin the application. The Finder and DA Handler usually also become infected. For technical reasons, some applications are immune to infection.

Scores does not intentionally try to do

any damage other than to spread itself and attack the two specific applications. It does occupy memory and disk space, however, and this can cause problems all by itself. People have reported problems printing and using MacDraw and Excel. There are also several errors in Scores which could cause system crashes or other unexplained behavior.

There is a serious conflict between Scores and Apple's System Software release 6.0.4 and later releases of System 6. In System 6.0.4, Apple began using some resources with the same type and ID as those used by Scores. When Scores infects the System file, it replaces Apple's versions of these resources with the Scores viral versions of the resources.

## **The nVIR Virus**

Discovered in 1987 (Europe) and 1988 (United States). At least one variation of the virus was written. There are two basic strains – "nVIR A" and "nVIR B".

nVIR infects the System file, but it does not infect the Note Pad or Scrapbook files, and it does not create any invisible files. nVIR begins spreading to other applications immediately, as soon as a new application is run. Some applications are immune to infection. The Finder and DA Handler usually also become infected, and document files are not infected or modified.

At first nVIR A and B only replicate. When the System file is first infected, a counter is initialized to 1000. The counter is decremented by one each time the system is started up and it is decremented by two each time an infected application is run.

When the counter reaches zero:

- nVIR A sometimes either says "Don't panic" (if MacinTalk is installed in the

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System folder) or beeps (if MacinTalk is not installed). When an infected application is run, nVIR A may say "Don't panic" twice or beep twice.

- nVIR B sometimes beeps. nVIR B does not call MacinTalk. The beep happens on a system startup.

It is possible for nVIR A and nVIR B to mate and reproduce, resulting in new viruses combining parts of their parents. There is no way to tell that you have an nVIR infection just by looking at your system.

In addition to the two basic strains of nVIR, many "clones" of nVIR B have appeared. They are identical to nVIR B except for minor technical differences.

### **The INIT 29 Virus**

Discovered in late 1988 (INIT 29 A). A second variant appeared in March, 1994 (INIT 29 B). There are no significant difference between the two strains.

INIT 29 is extremely virulent. It spreads very rapidly; you do not have to run an application for it to become infected. INIT 29 infects almost any file, including applications, system files, and document files. Document files are infected, but they are not contagious. The virus can only spread via system files and application files.

INIT 29 has one side effect which reveals its presence. If you try to insert a locked floppy disk on a system infected by INIT 29, you get this alert:

The disk "xxxxx" needs minor repairs.  
Do you want to repair it?

If you see this alert when you insert a locked floppy, your system might be infected by INIT 29.

INIT 29 does not intentionally try to do any damage other than spread itself. Nevertheless, it can cause problems. Some people have reported problems printing, system crashes, problems with MultiFinder under System 6, and incompatibilities with several startup documents on infected systems.

### **The ANTI Virus**

There are two strains of the ANTI virus. The ANTI A strain (February, 1989) and the ANTI B strain (September, 1990).

ANTI only infects applications and other files that resemble applications (such as the Finder). ANTI does not infect document files. It is possible for an application to become infected even if it is never run. Due to a technical quirk, ANTI does not spread at all under System 7 or under System 6 when MultiFinder is used. It only spreads when Finder is used under System 6.

There is an error in ANTI that causes it to slightly damage applications. The damage is very minor, however, and in almost all cases it does not cause any problems. If you experience problems with an application which was infected by ANTI (and then repaired), delete the repaired copy and replace it by an uninfected original copy.

ANTI does not intentionally attempt to do any damage other than spread itself. As with all viruses, however, it can still cause problems. The A strain of the virus contains special code which neutralizes any copies of the B strain it encounters. It is possible for an application to be infected by both the neutralized version of the B strain and by the A strain. Other than the special code in the A strain which looks for and neutralizes the B strain, there are only minor technical differences between the two versions of the virus.

### **The MacMag Virus**

Discovered in December, 1987 and is also known as the "Drew", "Brandow", "Aldus", and "Peace" virus.

MacMag only infects System files. Since applications are not infected by MacMag, it spreads slowly.

MacMag was programmed to wait until March 2, 1988, the anniversary of the introduction of the Mac II. The first time the system was started up on March 2, 1988, the virus displayed a message of

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peace on the screen and then deleted itself from the System file.

Since MacMag was programmed to self-destruct, it is unlikely that your software is infected with this virus.

## **The WDEF Virus**

Discovered in December, 1989 and is very widespread. There are two strains – “WDEF A” and “WDEF B”.

WDEF only infects the invisible Desktop files used by the Finder. It is spread through the sharing and distribution of disks (usually floppy disks.) WDEF spreads from disk to disk very rapidly. It is not necessary to run an application for the virus to spread. System 7 is completely immune to the WDEF virus.

The difference between WDEF A and WDEF B is that WDEF B beeps every time it infects a new Desktop file.

Although the virus does not intentionally try to do any damage, WDEF contains errors that can cause serious problems. In particular, the virus causes newer Macintosh models to crash almost immediately after insertion of an infected floppy (the IIci and later models). The virus also causes other Macintosh computers to crash frequently and it can damage disks. The virus also causes problems with the proper display of font styles, such as the “outline” font style.

You can remove a WDEF infection from a disk by rebuilding the desktop. If you use ResEdit, VirusDetective, or some other tool to search for WDEF resources, do not be alarmed if you find them in files other than the Finder Desktop files. WDEF resources are a normal part of the Macintosh operating system. Any WDEF resource in a Finder Desktop file, however, is cause for concern.

## **The ZUC Virus**

There are three known strains of the ZUC virus. ZUC A (March 1990), ZUC B (November, 1990), and ZUC C (June, 1991).

ZUC only infects applications, which do not have to be run to become infected. ZUC A and B activated on March 2, 1990 or two weeks after an application became infected, whichever was later. Before that date, they only spread from application to application. After that date, approximately 90 seconds after an infected application is run, the cursor begins to behave unusually whenever the mouse button is held down. The cursor moves diagonally across the screen, changing direction and bouncing like a billiard ball whenever it reaches any of the four sides of the screen. The cursor stops moving when the mouse button is released.

ZUC C is similar to ZUC A and B. The only significant differences are that ZUC C was timed to cause the unusual cursor behavior only during the period between 13 and 26 days after an application becomes infected, but not earlier than August 13, 1990, and ZUC C causes the cursor to begin to behave unusually approximately 67 seconds rather than 90 seconds after an infected application is run.

ZUC behavior is similar to that of a desk accessory named Bouncy. The virus and the desk accessory are different and should not be confused.

ZUC has two noticeable side effects. On some Macintosh computers, the A and B strains can cause the desktop pattern to change. All three strains can also sometimes cause long delays and an unusually large amount of disk activity when infected applications are opened.

ZUC can spread over a network from individual Macintosh computers to servers and from servers to individual Macintosh computers. Except for the unusual cursor behavior, ZUC does not attempt to do any damage.

## **The MDEF Virus**

There are four strains of the MDEF virus: MDEF A — also sometimes called the “Garfield” virus — (May, 1990), MDEF B — also sometimes called the “Top Cat”

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virus (August, 1990), MDEF C (October 1990), and MDEF D (January, 1991).

The A, B, and C strains of MDEF infect both applications and the System file. They can also infect document files, other system files, and Finder Desktop files. The Finder and DA Handler also usually become infected. The System file is infected as soon as an infected application is run. Other applications become infected as soon as they are run on an infected system.

The D strain of MDEF (apparently never released) only infects applications, which can become infected even if they are never run. An application infected by MDEF D beeps every time it is run.

The MDEF viruses do not intentionally attempt to do any damage, yet they can be harmful. They do not display any messages or pictures.

The MDEF B and C strains attempt to bypass some of the popular protection INITs. The MDEF C strain contains a serious error which can cause crashes and other problems.

The MDEF viruses are named after the type of resource they use to infect files. MDEF resources are a normal part of the Macintosh system, so you should not become alarmed if you see them with ResEdit or some other tool.

### **The CDEF Virus**

Discovered in August, 1990 and is quite widespread.

CDEF only infects the invisible Desktop files used by the Finder. It spreads from disk to disk very rapidly. System 7 is completely immune to the CDEF virus.

CDEF does not intentionally try to do any damage. As with all viruses, however, the CDEF virus is still dangerous. You can remove a CDEF infection from a disk by rebuilding the desktop. The CDEF virus is named after the type of resource it uses to infect files. CDEF resources are a normal part of the Macintosh operating system, so you

should not become alarmed if you see them with ResEdit or some other tool. Any CDEF resource in a Finder Desktop file, however, is cause for concern.

A new version of the CDEF virus was discovered in February, 1993. There are minor technical differences between the new version and the original virus.

### **The MBDF Virus**

Discovered in February, 1992. It spread through the "10 Tile Puzzle" and "Obnoxious Tetris" games; a game named "Tetricycle" or "tetris-rotating" was a Trojan horse which installed the virus.

The MBDF virus infects both applications and the System file. It also usually infects the Finder and several other system files. The System file is infected as soon as an infected application is run. Other applications become infected as soon as they are run on an infected system.

The MBDF virus is non-malicious, but it can cause damage. In particular, the virus takes quite a long time to infect the System file when it first attacks a system. The delay is so long that people often think that their Macintosh is hung, so they do a restart. Restarting the Macintosh while the virus is in the process of writing the System file often results in a damaged System file that cannot be repaired. The only solution in this situation is to do a clean install.

The MBDF virus is named after the type of resource it uses to infect files. MBDF resources are a normal part of the Macintosh system, so you should not become alarmed if you see them with ResEdit or some other tool.

There are two strains of this virus: MBDF A and MBDF B. There are minor differences between the two strains.

### **The INIT 1984 Virus**

Discovered in March, 1992.

INIT 1984 is malicious. It triggers if an infected system is restarted on any

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Friday the 13th in 1991 or later years. The virus damages a large number of folders and files. File and folder names are changed to random 1-8 character strings. File creators and file types are changed to random 4 character strings. This changes the icons associated with the files and destroys the relationships between programs and their documents. Creation and modification dates are changed to Jan. 1, 1904. In addition, the virus can delete a small percentage (<2%) of files.

The virus only infects INITs (also known as startup documents or system extensions). The virus spreads from INIT to INIT at startup time. The virus affects all types of Macintosh computers. It spreads and causes damage under both System 6 and System 7. On older Macintosh computers (such as the 128K, 512K, and XL), the virus causes a crash at startup.

### **The CODE 252 Virus**

Discovered in April, 1992.

The virus triggers if an infected application is run or an infected system is started up between June 6 and December 31 of any year, inclusive. When triggered, the virus displays the following message:

You have a virus.  
Ha Ha Ha Ha Ha Ha Ha  
Now erasing all disks...  
Ha Ha Ha Ha Ha Ha Ha  
P.S. Have a nice day  
Ha Ha Ha Ha Ha Ha Ha

(Click to continue...)

Despite this message, no files or directories are deleted by the virus. However, a worried user might turn off or restart a Macintosh on seeing this message, and this could corrupt the disk and lead to significant damage.

Between January 1 and June 5 of any year, inclusive, the virus simply spreads from applications to System files, and then on to other application files.

Due to errors in the virus, it only spreads to new applications under System 6 without MultiFinder. The Finder also usually becomes infected. Under System 6 with MultiFinder, the virus infects the System file and the "MultiFinder" file, but it does not spread to new applications.

Under System 7, the virus infects the System file, but it does not spread to new applications. A bad error in the virus can cause crashes or damaged files under System 7.

### **The T4 Virus**

Discovered in June, 1992 included in versions 2.0 and 2.1 of the game GoMoku (available on the USENET, bulletin boards, and anonymous FTP archive sites).

The virus spreads to other applications and to the Finder. It also attempts to alter the System file. When the virus infects an application, the application cannot be repaired.

The change to the System file results in alterations to the startup code under both Systems 6 and 7. Under System 6 and System 7.0, the change results in INIT files and system extensions not loading. Under System 7.0.1, the change may render the system unbootable or cause crashes in unpredictable circumstances. If the virus damages your System file, do a clean install.

If your system suddenly stops loading INITs and system extensions for no good reason, you may have been attacked by the T4 virus.

Once installed and active, the virus does not appear to perform any other overt damage. The virus may display the following message:

Application is infected with the T4 virus.

There are four very similar strains of the T4 virus: T4-A (contained in GoMoku 2.0), T4-B (contained in GoMoku 2.1), T4-C (discovered in February, 1993), and a version that appears to have been used

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for testing – “T4-beta”. The difference is the trigger date. The trigger date for T4-A is August 15, 1992, while the trigger date for T4-B is June 26, 1992. The virus does not do anything before its trigger date. After the trigger date, the virus spreads to other files and attempts to alter the System file. The T4-C virus has no trigger date and begins spreading immediately.

### **The INIT 17 Virus**

Discovered in April, 1993.

The virus infects both the System file and application files. The virus displays the message “From the depths of Cyberspace” the first time an infected Macintosh is restarted after 6:06:06 A.M. on October 31, 1993. After this message displays once, it does not display again.

The virus contains errors which can cause crashes and other problems. It causes crashes on Macintosh computers with the 68000 processor, like the Macintosh Plus, SE, and Classic.

For technical reasons, the virus does not infect some applications, and on some systems, it does not spread at all. It does, however, spread under both System 6 and System 7.

### **The INIT-M Virus**

Discovered in April, 1993.

INIT-M is a malicious virus. It triggers on any Friday the 13th and severely damages a large number of folders and files. File names are changed to random 8 character strings. Folder names are changed to random 1-8 character strings. File creators and types are changed to random 4 character strings. This changes the icons associated with the files and destroys the relationship between programs and their documents. File creation and modification dates are changed to Jan. 1, 1904. In some cases, one file or folder on a disk may be renamed Virus MindCrime. In some very rare circumstances, the virus may also delete a file or files. (Note that the next

two Friday the 13ths are in January 1995, and October 1995.)

The virus can also sometimes cause problems with the proper display of windows. The virus only spreads and attacks under System 7.0 or later. It does not spread or attack under System 6. The virus infects all kinds of files, including extensions, applications, preference files, and document files. The virus creates a file named FSV Prefs in the Preferences folder.

### **The CODE 1 Virus**

Discovered in November, 1993.

The virus infects both applications and the System file. It spreads under both System 6 and System 7.

The virus renames the system hard drive to “Trent Saburo” whenever an infected Macintosh is restarted on any October 31. Although the virus does not contain any other intentionally destructive code, it can cause crashes and other problems.

### **The INIT 9403 Virus**

Discovered in March, 1994. This virus is also sometimes called the “SysX” virus.

INIT 9403 is very destructive. After a certain number of files are infected, the virus erases disks connected to the system. It attempts to destroy disk information on all connected hard drives (> 16 Mb) and attempts to completely erase the boot volume.

The INIT 9403 virus has been found only on Macintosh computers running the Italian version of the Macintosh system (so far). However, you should protect yourself against this virus even if you do not run the Italian system.

Once present, the virus alters the Finder file and may insert copies of itself in various compaction, compression, and archive programs. These infected files can then spread the virus to other Macintosh computers.

The virus spreads under both System 6 and System 7. 🍏

# The RA 2.0 Personal Server

By Fred Widmer

The Apple Remote Access (ARA) Personal Server lets you use a modem and telephone lines to connect a remote Macintosh or PowerBook computer to another Macintosh computer or to an entire AppleTalk network.



## **Features**

ARA includes a variety of features.

### **Ease of Use**

- Installs in only minutes.
- Provides everything you need for both the calling and the answering Macintosh computers—client and server software—in one convenient package (see Note 1 on the following page).
- Lets individuals or small organizations access services remotely, in the same intuitive way as they work with services locally.
- Requires no specialized equipment.

### **Adaptability**

- Enables individuals or small organizations to take advantage of remote access to a single Macintosh computer or an entire AppleTalk network.
- Supports a variety of leading modems.

- Supports a range of network types, including LocalTalk, Ethernet, and Token Ring.

### **High Performance**

- Features built-in industry-standard data compression and error detection.
- Provides increased efficiency, with Apple's smart-buffering technology.
- Is optimized for a variety of connection types.

### **Built-in Security**

- Includes several security options that let you restrict access to information.
- Generates an activity log to track usage.

### **Flexible Client Capabilities**

- Supports a variety of connections, including cellular, X.25, and ISDN (see Note 2 on the following page).
- Is fully integrated with Macintosh System 7, so remote users can work with such familiar tools as the Chooser, Alias Manager, and the Finder.

ARA Personal Server software includes everything you need to let a Macintosh computer communicate with another Macintosh or an entire AppleTalk network over standard telephone lines. It takes only minutes to set up and offers powerful capabilities that can help make an individual or a small workgroup of Macintosh users even more productive, no matter where they are (see Note 2 on the following page).

With ARA Personal Server, you can work wherever you like, at home or on the road, and have access to all of the resources of your office computer or network. You and your colleagues can

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send and receive electronic mail, collaborate on a shared project, or print to a network-connected printer. Yet doing all of this is as simple as if you were working at your office.

Getting started with ARA Personal Server is easy. The software features single-step installation that requires no special technical knowledge. And ARA Personal Server adjusts automatically to the type of network you're calling, leaving you free to focus on your own work instead of worrying about the details of networking.

In today's increasingly complex and mobile world, ARA Personal Server provides convenient, direct access to information and resources at a remote location for computer users on the go. So, whether you want to share files with a neighbor or collaborate on a project with colleagues around the world, the ARA Personal Server can help you get the job done quickly, easily, and affordably.

**Note:** These notes apply to the preceding:

1. Includes software for one client. Additional client software must be purchased or licensed separately.
2. X.25, ISDN, and cellular connections require additional Apple or third-party products.

### **Differences Between ARA 1.0 and ARA 2.0**

- ARA 1.0 had both client and server capability, and came with a license to copy to three computers. ARA 1.0 cannot connect to an ARA 2.0 server.
- ARA 2.0 Personal Server comes with a license to copy to two computers, and can act as a server or a client. There is a compatibility mode allowing connection to ARA 1.0 servers.
- ARA 2.0 Client can only access ARA

1.0 or 2.0 servers, it does not provide server capability.

### **ARAP 2.0**

The AppleTalk Remote Access Protocol (ARAP) provides efficient AppleTalk services on a per client basis over slow links. It defines the login and authentication sequences. The ARAP specification has been enhanced to include the ability to change passwords, allow password retries, authenticate a user using external third party security devices, and send out-of-band messages such as alerts and greetings. In addition to the above enhancements, ARAP Version 2.0 now lets administrators of the Multiport Remote Access Server set the specific zones each user can see.

**Note:** The protocol enhancements are what allow for the new functionality; therefore, ARAP 1.0 based products are not able to take advantage of these enhancements.

### **Remote Password Change**

ARAP 2.0 provides a method for a user to remotely change their password (without having to use AppleShare on the same Macintosh as was necessary with ARA 1.0). Other new features in the MultiPort Server product let the administrator set the number of retries allowed before user logon is disabled and to force users to change their passwords via the "New password required" field in the user setup window.

### **Roving Access Security**

Dial-back is not satisfactory for a customer who wants both security and mobility. Mobile security is now added to the feature list by allowing for the use of third party "security cards." With some "security cards" the user must type in a personal code and a requester code into a credit card size calculator like device. The device then returns the

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SecureID. Other “security cards” are time based and constantly display current SecureID information. When trying to make a connection to a secure server, the user sees a dialog box requesting a SecureID. Without the SecureID and the standard username and password the user is not able to get access to the server.

The ARAP 2.0 protocol was defined such that security extensions can be added as drop-in modules. Several third party security vendors have agreed to write the extensions that let their products work with Apple MultiPort servers.

### **X.25 connectivity**

The new MultiPort Server software supports extensions that allow a user to connect to ARA through an X.25 network. This type of access is valuable in situations where the cost of X.25 asynchronous dial-up service is less than the cost of end-to-end service through the phone companies. These X.25 extensions are sold as separate products from ARA 2.0 MultiPort server.

### **SNMP Management**

Integrated network management via SNMP is now a part of the MultiPort servers.

### **DialAssist**

DialAssist is a client software (both ARA Personal Server 2.0 and ARA 2.0 Client Only) feature that makes long distance, credit card, international, and private PBX calling extremely easy for the user. The software is preconfigured with all of the most common dialing codes so that a user only has to select items from pop-up menus.

### **MNP10 error correction**

If you have a modem that supports MNP10 error correction, you can turn it on via the Apple Remote Access Setup window. 🍏

## **Power Macintosh Corner**

From the Technical Information Library

### **Using America Online**

America Online (AOL) software version 2.1 (or later) works with Power Macintosh computers if you increase the suggested memory size for the America Online application to 2 megabytes. Also, make sure you have 2 megabytes of RAM available. If this fails to work, turn off the Modern Memory Manager in the Memory control panel.

Anyone with an earlier version of the AOL software needs to upgrade to version 2.1.

### **Reported ROM Size**

Several third party utilities, such as Snooper, MacEkg, and MacBench 1.1, report the Power Macintosh ROM size as 3MB instead of the 4MB noted in the product specification sheets and technical information. This doesn't mean that your system is short 1MB.

The ROM is actually 4MB in size. The unusual reporting is a feature of the Gestalt call values and the Power Macintosh ROMs. The Gestalt selector is behaving normally by returning the ROM size minus the 68K emulator portion, which uses about 1MB of space. Even MacTest Pro returns 3MB as the ROM size.

### **AudioVision Display S-Video Port**

When using the AudioVision 14" display with your Power Macintosh AV, always use the S-Video ports that are on the AV card, since the port on the AudioVision 14" Display is currently not supported by Apple or third party software. The S-Video port was included on the AudioVision 14" Display for “future expansion”. 🍏

# PowerBooks and Serial Printers

By John Phelps

Both the PowerBook 200 and 500 series computers have only one serial I/O port which is mapped as a modem port. Depending on the individual printer driver, the Chooser may show a combo port icon (such as the ImageWriter driver), or have two choices: printer and modem (such as the StyleWriter II). If given two choices, you should select modem port.

AppleTalk can run through this port if LocalTalk (built-in) is selected in the Network control panel, and AppleTalk is Active in the Chooser. To successfully print to a direct-connect printer, you must make AppleTalk inactive through the Chooser.

You can redirect AppleTalk to a different port using the Network control panel if you are connected to an Ethernet network, or if you have Apple Remote Access Client software installed.

Since Apple Remote Access requires AppleTalk to be active, and a serial printer requires AppleTalk to be inactive, the Remote Only selection in

the Network control panel allows you to set the internal modem port for AppleTalk. This enables the external serial port for use with non-AppleTalk devices.

## **PowerBook Setup control panel**

### **Normal and Compatible Mode**

In the Normal mode, the modem is addressed via the System 7 Communication Toolbox, and the external port is available for usage.

If your communication program is NOT compatible with the Communication Toolbox, set the PowerBook Setup control panel to Compatible. This mode prevents the external serial port from being addressed by other programs, as well as preventing communication with a serial printer.

### **PowerBook 280/280c using Express Modem 1.5 or later software**

On the PowerBook Duo 280 and 280c, you need to go into the Express Modem control panel and change the radio button setting to "External", not "Express Modem". 🍏

## **New Places to Find the Information Alley**

You can now find the Information Alley on these online services and BBSs:

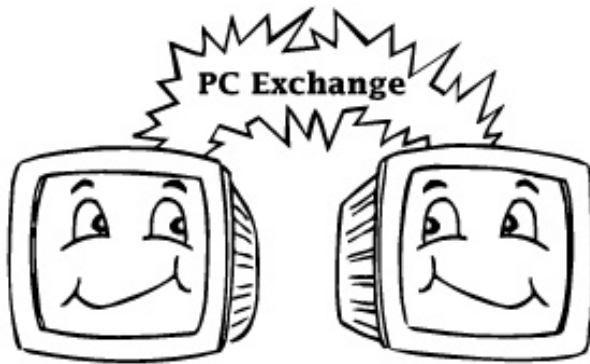
- Linger's Lair BBS (Toledo, Ohio)  
(419) 843-2583 – Logon as **Visitor** with a password of **Hello** and **1234** as the last four digits of your phone number.
- The Los Angeles Macintosh Group BBS  
(310) 559-6227 – Runs on SoftArc Inc.'s FirstClass software, but you can dial up with other telecom software, such as ZTerm. The voice line is (310) 278-5264, (voice mail system with information). Leave a message for someone to call you back. The BBS is for dues-paying members only, though visitors may check in and poke around (but not post messages and download files).
- Synapse BBS (Quebec City, Canada)  
(418) 527-8738 – Path is **Synapse Plus** → **Logitheque** → **Documents** → **Documents\*Info Alley**. Runs on FirstClass, includes 13 lines at 28,800 bps, and is connected to the Internet. 🍏



# Macintosh PC Exchange 2.0

By Wayne Brissette and Beth Osborne

Macintosh PC Exchange is a control panel that lets you format, read, or write DOS-format floppy disks in a Macintosh computer.



Formatting a disk prepares the disk to receive data. PC and Macintosh computers format disks differently. The term "DOS" describes disks formatted using DOS, Windows, or OS/2. Macintosh PC Exchange doesn't provide data translation.

## **New Features in 2.0**

Release 2.0 of Macintosh PC Exchange includes these new features:

- Now works with DOS-format and Windows-format SCSI fixed and removable media storage devices (such as Iomega Bernoulli and SyQuest cartridge drives).
- Now works with Apple II ProDOS-format floppy disks.
- Lets you access DOS-format drive container files created by the DOS Compatibility Card for Macintosh.
- Uses considerably less RAM (less than 5K) when not in use.
- Includes an on/off switch in the control panel that lets you turn off the PC Exchange disk-mounting capability

temporarily.

- Comes with built-in device drivers to support a wide variety of SCSI hard disk and removable media drives.
- Works on Power Macintosh systems in Macintosh 68000 emulation mode.

## **Requirements**

Be sure you have the proper software and hardware to use Macintosh PC Exchange:

- System software version 7.0 or later
- An Apple SuperDrive (formerly called FDHD), or equivalent third-party drive that reads DOS high-density disks
- At least 3 MB of random access memory (RAM)

## **Working with DOS Disks**

After you install Macintosh PC Exchange in your Control Panels folder and restart your computer, DOS-format disks appear directly on your Macintosh desktop when you insert them into the floppy disk drive.

## **Formatting Disks**

Formatting erases all data on a disk. Be sure the disk you want to format doesn't contain information you need. Click on the disk icon once to select it, and then choose Erase Disk from the Special menu. A format pop-up menu includes these options:

- Standard Macintosh format  
Formats high-density disks at 1440K, and low-density disks at 800K.

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- PC-DOS format  
Formats high-density disks at 1440K, and low-density disks at 720K.
- Apple II ProDOS disks  
Formats 400K, 800K, or 1.4MB 3.5 inch Apple II ProDOS disks

### **Unreadable Disks**

When you insert a floppy disk into a Macintosh, you may see a message saying the disk isn't readable, and asking whether to initialize it. This might happen for the following reasons:

- In the past, many DOS users formatted low-density disks for use as high-density disks. On a DOS computer, always format standard double-sided disks in the 720K capacity, and high-density disks in the 1440K capacity. The Macintosh doesn't recognize an improperly formatted disk.
- An unreadable disk might be damaged. Don't try to repair a DOS-format disk with a Macintosh repair utility program. This may destroy information on the disk. If the disk requires repair, use a disk repair utility on a DOS computer.
- If a disk has never been used, you just need to initialize it.
- If you don't see more than one disk format choice, your computer needs an Apple SuperDrive. You can't use Macintosh PC Exchange in a Macintosh SE or a Macintosh II computer without a SuperDrive upgrade. You can't use Macintosh PC Exchange on a Macintosh Plus computer.
- Macintosh PC Exchange might not be properly installed. The PC Exchange icon must be in the Control Panels folder, and you must restart the computer after installation. Read the installation instructions in the Macintosh PC Exchange User's Guide.

### **Extension (INIT) Conflicts**

The Macintosh loads system extensions, often called INITs, into system memory when the computer starts up. When they aren't compatible with other software on your computer, you have an INIT conflict. Here are some typical symptoms of INIT conflicts:

- System won't accept a correctly formatted DOS disk.
- System freezes when you insert a correctly formatted DOS disk.
- You can't open the Macintosh PC Exchange control panel to make changes.

If you suspect an INIT conflict, call the Apple Fax Info System at 1-800-505-0171 and order fax document number 20242 for instructions.

### **Working with Dos Documents**

#### **DOS Documents Won't Open**

Sometimes you might double-click a document's icon, and see a message saying that the application program couldn't be found. An MS-DOS or Windows document may not open when you double-click the icon for the following reasons:

- The Macintosh doesn't know which application program to launch. See the [Opening a Document from within a Program](#) section and the [Assigning Document Type](#) section.
- You may be trying to access the document over a network. PC Exchange assignments don't work for documents over a network. Assignments work only for documents on DOS-format floppy disks and documents copied from DOS-format floppy disks.
- The disks currently available on your computer don't have the application. Find the disk that contains the application, and copy the application to your hard disk.

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Sometimes the application program launches, but the document doesn't open. Here are some reasons for this:

- The application may not be able to open DOS documents when you double-click the icon. See [Opening a Document from within a Program](#).
- The document may have been assigned a document type that the program can't open. See the [Assigning Document Type](#) section to change the document type. See the [Assigning Macintosh Programs to DOS Documents](#) section of the [Macintosh PC Exchange User's Guide](#) to find types that a program can open.

### Assigning Document Type

The Macintosh PC Exchange control panel lets you map file types. A three-letter DOS suffix maps to a corresponding document type on the Macintosh. Here's how to designate a specific Macintosh application for opening MS-DOS documents:

STEP	ACTION
1	Choose <b>Control Panels</b> from the Apple menu.
2	Double-click the <b>PC Exchange</b> control panel to open it.
3	Click on <b>Add</b> .
4	In the DOS Suffix box, type a period and the three-letter DOS suffix (for example, <b>.TXT</b> ). The suffix is required. There is an error in the manual which states that a suffix is NOT required. This is incorrect.
5	In the lower part of the dialog box, select the Macintosh application.
6	Choose a document type from the Document Type pop-up menu (for example, <b>TEXT</b> ).
7	Click <b>OK</b> .

Once you make this assignment, you can double-click the icon of the DOS

document to open it.

When assigning document types, you must specify the type of document the application supports. If you're unsure of which document type to use, TEXT is the safest.

Once you've made assignments, documents appear on the disk with the icon representing application and document type. Documents with an unassigned DOS suffix appear as generic DOS documents.

So that all network users are consistent, make a master list of assignments on one Macintosh. Also, place a copy of the PC Exchange Preferences file in the Preferences folder, within the System Folder, of each licensed user's Macintosh.

### Opening a Document from within a Program

To open a document using an application program, follow these steps:

STEP	ACTION
1	Launch a Macintosh application.
2	Choose the <b>Open</b> command from the File menu.
3	In the dialog scroll box, select the DOS document, and click <b>Open</b> .

Here's why the document you want may not be listed in the directory dialog box when you choose Open in an application program:

- The program can't recognize the document type assigned to the document. Try to open the document with another application program. Or reassign a document type (see [Assigning Document Type](#)). Refer to the table in the [Assigning Macintosh Programs to DOS Documents](#) section of the [Macintosh PC Exchange User's Guide](#) to find types that a program can open.

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- You may be trying to access the document over a network. PC Exchange assignments don't work for documents over a network. Assignments work only for documents on DOS-format floppy disks and documents copied from DOS-format floppy disks.

### **Incorrect Document Format**

Sometimes you can open a document, but find the format is wrong. It may contain incorrect characters and strange codes. This can happen when an application program recognizes the document's type, but doesn't interpret the document's file format (the way the information in the document is encoded).

Check the application's documentation for document opening and saving procedures with different file formats, or open the document with another program.

You can also try assigning a different document type. Follow the instructions in the [Assigning Document Type](#) section of this article. Refer to the table in the [Assigning Macintosh Programs to DOS Documents](#) section of the [Macintosh PC Exchange User's Guide](#) to find types that a program can open.

### **Working with Macintosh Documents**

#### **Document Types**

Choose **Save** from the File menu to save documents onto a DOS-format disk. When saving documents created or modified on the Macintosh, be sure to save the document in a file format that the DOS application can read. Refer to the application's documentation to find out what file formats the program can open, import, and save.

The Macintosh also creates two new files for each document, to keep track of such things as the location of icons and

windows. You'll need to leave about 5K of extra disk space for each document to accommodate these files.

### **Document Name Length**

While the Macintosh supports document names up to 31 characters long, DOS supports up to eight characters plus a three-character suffix. Macintosh PC Exchange truncates a longer name used on the Macintosh when saved to a DOS disk. To preview what the shorter name looks like:

<b>STEP</b>	<b>ACTION</b>
1	Click on the file to highlight it.
2	Choose <b>Get Info</b> from the File menu.
3	Click on the document name in the <b>Info</b> dialog box. This switches between the Macintosh and DOS (truncated) version of the name.

If this procedure doesn't work, make sure the File Sharing Extension is in the Extensions folder.

### **Non-English Word Processors**

When you create a document with a non-English word processor on the Macintosh, the special accent characters (diacritical marks) may change when you open the document on a DOS computer. DOS computers may not support all characters displayed on a Macintosh. 🍏

#### **Tips and Tidbits**

In PageMaker 4.2, do a **⌘-About PageMaker** to get a list of the current Additions installed. Do a **Shift-About PM** to see the programming credits. Contributed by Mark Karp. 🍏

# The Macintosh Application Environment (MAE)

By Stephanie Hahn

The Macintosh Application Environment (MAE) is an X-Window client that currently runs on a Sun SPARCstation or an HP 9000/700. MAE provides you with a complete Macintosh environment in an X Window.



Within this environment you can use Macintosh applications, print, move files, create folders, and copy and paste between Macintosh applications and UNIX applications.

MAE works within the industry-standard X Window System running on UNIX workstations. This means that you realize all the benefits of the Macintosh desktop while still gaining access to the UNIX environment and X Windows. You are able to resize the Macintosh X Window to any size desired.

## **MAE Emulation**

MAE emulates the Motorola 68LC040, but a number of the most used instructions have been translated into native UNIX code, thereby taking advantage of the native performance of the system CPU.

The 68K emulator handles instructions from the application by reading the

application's 680x0 code, and performing the equivalent sequence of instructions for the host's RISC processor. To increase efficiency and processing speed, the emulator works hand-in-hand with a Mixed Mode Manager to make direct calls to the RISC processor whenever possible.

## **System 7 Support**

MAE supports System 7 version 7.1 features on top of UNIX. It is well integrated into the standard UNIX graphics system and the X Window System. You have access to Macintosh System 7.0 features such as Aliases, TrueType, AppleEvents, publish-and-subscribe, Balloon Help, QuickDraw, and 32-bit addressing. Version 1.0 of MAE does not support system extensions such as QuickTime. The Sound Manager and Serial Managers are also not supported. Any software product that requires direct access to the Macintosh hardware does not work.

You can access Macintosh high-density floppy disks and CD-ROMs using MAE.

Because the native UNIX operating systems don't handle floppy or CD interrupts in the same way that the Macintosh operating system does, a new button has been added for CD and floppy inserts. The button appears at the bottom of the Macintosh X Window. You insert the floppy or CD, and choose this button to have it mount on your desktop, within the Macintosh X Window.

MAE supports the Network File System (NFS), which lets you access, display, and manipulate remote and local Macintosh, PC, and UNIX files. The first version of MAE does not support AppleTalk, and behaves just like a

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Macintosh with AppleTalk networking turned off. This means that the Network extension, the File Sharing control panel, the Sharing Setup control panel, and the Users & Groups control panel are not shipped with MAE. Other areas normally associated with the Finder that are a part of MAE include: Finder Help, Labels control panel, and the Views control panel.

MAE lets you print UNIX and Macintosh files on printers that support PostScript, using the Apple Chooser and the Print command. It also includes QuickDraw to manage all graphics operations required by Macintosh applications.

### **MAE Components**

Macintosh Application Environment consists of three distinct components:

- Macintosh Desktop Services  
Windows, menus, general Macintosh look and feel.
- Macintosh Application Engine  
Complete Macintosh run-time layer existing within the X Window. Macintosh applications and control panels and other elements of the Macintosh run as if on a Macintosh computer.
- Macintosh System Services  
File management, memory management, and system services. This is the portion that lets you manipulate both Macintosh files and UNIX files and applications.

The file manager seamlessly integrates the UNIX file system with the Macintosh file system. Similarly, UNIX printing is be accessible to Macintosh applications through the Print Manager. A Macintosh user who happens to be using MAE should not see a major difference between it and a Macintosh.

### **Hardware Requirements**

- Sun SPARC workstation running Solaris 2.3 or later
- HP workstation running HP-UX 9.01
- X Window System 11 release 4 or later
- Window Manager such as Motif or Open Look
- RAM: 16 MB minimum, 32 MB recommended
- Hard disk space: 16 MB minimum, 22 MB recommended for greater performance

You can expect anywhere from Macintosh LC to Quadra performance, depending on the platform, processor speed, and system resources of the system that it is installed on.

Application performance on MAE very much depends on the system in which it is installed. MAE is designed so that key components execute as native RISC code. Therefore, the more powerful the system and the greater the system resources (system cache, hard disk, and RAM) the better the MAE performance. It also employs an Operating System Access library to further take advantage of the native performance. The library lets the Macintosh Application Environment directly access the services provided by the host operating system, such as system calls or graphics library routines. 🍏

#### **Tips and Tidbits**

Finder 7.0 and MacsBug

Turn on Balloon Help and point to the MacsBug file.

The balloon reads: "This file provides programmers with information proving that it really was a hardware problem..." 🍏

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