MacAssist 1 .0
Live assist digital audio software
for the Apple Macintosh®

Introduction

My involvement with the Engineering Department at WITR, (the campus radio station at the Rochester Institute of Technology, Rochester NY), had me searching for a digital replacement for the station's 'cart' system. Most of the systems available were extremely expensive, Intel PC-based and/or used a proprietary operating system and hardware. (i.e. the infamous DigiCart). I realized that all we really needed was a system that could play 16 bit, CD-quality sound files in real time from a very large hard drive or hard drives and software to handle hard drive back ups and sequencing the items to be played. Again I realized that these tasks would be simple and inexpensive to achieve with the Macintosh and its operating system.

- • Most new Macs come out of the box with 16 bit stereo audio in and out.
- • Off the shelf hard drives and back up software is readily available. Built-in ethernet opens up the possibility to network between studios.
- • The operating system supports a vast array of sound tools simplifying the task of writing software to handle the sequencing of items to play.

MacAssist is a programming project I decided to undertake near the end of Spring 1994 to perform the sequencing needed for "Live Assist" radio. MacAssist allows the user to select items to be played (AIFF files in this version) from a special folder (user selected) and any sub folders under it. This way the DJs don't need to navigate through unrelated folders to get to the items they want to play; only folders of interest are displayed. Items may then be played immediately, assigned to one of four hot keys (played when the button is pressed) or added to a play list. The play list is a queue of items to be played sequentially. Once you start the queue playing, the software takes care of seguing from one item to the next; just sit back and watch the queue timer count down. For each item the user can define default times for overlapping between the previous and next item. Breaks can also be added to the queue to stop the sequence between items. Play lists can be saved and loaded again later. The number of items that can be playing simultaneously is limited by processor load, hard drive speed and memory available. MacAssist has no problem running in the background.

MacAssist will play mono or stereo AIFF files at any sampling rate supported by your hardware. (thanks apple for making that so easy!)

Disclaimer

The author is not responsible for any damages caused, directly or indirectly, by the use of this software. MacAssist is offered "as is." I makes no guarantees about the performance or reliability of this software.

Installation

A few warnings...

• Currently, MacAssist does NOT check with the Gestalt manager to make sure your computer has the required hardware or system software to run. If you are running system 7.1 or later with the sound manager 3.0 or later, and your computer has the Apple Sound chip or latter, you should be fine.

• DO NOT use virtual memory. Mac Assist WILL crash under virtual memory. I don't know why. If you have any advice for me, PLEASE let me know.

• When the software encounters an error, (i.e. file error or too much processor load to start another sound), it will not notify the user. Instead it will simply fail to do what it was asked to do. (i.e. save a play list or start another item playing). I hope to correct this in a later version. I have said this many times, so chances are I will never really fix it.

Now the installation...

1. Run the MacAssist application.
2. Set up where the application looks for sound (AIFF) files.
> - Under the FILE menu, select SET HOME FOLDER.
> - Use the SELECT button in the folder dialog box to make the named folder the
root folder used by the application. This was done so DJ's don't have to shuffle through a bunch of folders to locate the sound files.

> NOTE: Folders can be on any hard drive or network drives. The application will attempt
> to mount the drives which contain the default folders when it starts up.

3. Set up key equivalents by selecting KEY EQUIVALENTS under the CONTROLS menu These settings are saved as defaults for the next time you run the program on the same computer.

MacAssist creates two preference files in the system/preference folder. *MacAssist Folder Prefs* sets default folders and *MacAssist Key Prefs* sets up key equivalents.

Operation

The best way to understand MacAssist is to use it. The main dialog box has four areas of interest. The first is the file area on the top left. This is where all the sound files, play list files or folders in a given folder are displayed. The name of the current folder is shown on the pop-up menu on top of the list. Use this menu just as you would with the standard "open dialog box". The only catch is you can't get down to the desk top. The Home Folder you set above is as far "down" as you can go. When you select a sound file from the list, three buttons under the menu become active: PLAY, HOT KEY and ADD. Selecting a play list file (more on this latter) activates only the ADD button. Clicking PLAY will start the file playing, Clicking HOT KEY will bring up a dialog box asking you which one of the four keys to assign it to, and clicking on ADD will add the file to the current play list. If a playlist file is added to the play list, it will appear as a single item until you start the play list playing. At this time, the play list file will be

expanded into the list of items it represents. MacAssist will resolve any aliases in a folder, making them appear as if the actual file or folder being referenced were in the folder. This lets users set up folders on any drive so that they appear to be in the home folder structure.

Next is the Play List area. Files you have added will appear in this list in the order they will be played in. If you select an item in this list (by clicking on it), you can delete it using the delete key. If you open a play list using the OPEN menu item under the FILE menu, or add an item from the file area, it will be inserted in the possition of the item you have currently selected in this area. If no items are currently selected the list you opened or item you added will be put at the end of the list. Remaining time shows you the time to the end of the list or the next break. This time includes only the time from sound file items and not from play list files. The START and ADD BREAK buttons at the bottom are self explanatory.

The Playing area, near the bottom of the dialog box, is a list of items which are currently playing. Each item has a pop-up menu associated with it which allows you to control the item. Play, Pause and Stop are self explanatory. Recue will stop an item from the play list and put it back in the beginning of the list. Fade To Next fades the item out in four seconds and if the item is from the play list, starts the next item in two seconds.

The last area is the Hot Key area at the very bottom. Pressing any one of the button will start playing the item assigned to it. Use the above mentioned HOT KEY button in the file area to assign items to the keys.

The final item that requires explanation is the SET ITEM TIMES item in the FILE menu. SET ITEM TIMES allows you to control how an item will interact with the previous item and next item in a play list. If a item is selected in the play list, SET ITEM TIMES will bring up a dialog box allowing you to set the plaing time lapsed before the computer will automatically start the next item in the list. Likewise, you can set a prestart time for that item telling the computer to start this item X number of seconds before it normally would have. The SEGUE IN and OUT buttons allow you to hear the transition in to and out of the item whos time you are editing. Finaly, if you hit the OK button, the time setting you selected will take effect for the selected item only, in current play list only.   Saving a play list also saves changes you may have made to any item times in that list.

If a item is selected in the file list, SET ITEM TIMES will bring up similar dialog box. In addition to allowing the user to set times, you can add three lines of comment text to be saves with the times as default setting for that particular AIFF sound file. (If you really want to know, the information is saved in the application chunk of the AIFF file and will be ignored by other programs.) When an item plays, the first line of the three lines of comment text (if any) is displayed in the playing area. If you select an item in the file area and hold the mouse button down over it, all three lines will appear in a small window as long as the mouse button remains down.

But what if an item is selected in both the play list and the file list? The list last clicked in becomes the active list and is highlighted. All applicable menu function like SET ITEM TIMES are applied to the selected item in the <u>active</u> list.   Hitting the TAB key will switch between active lists as well as clicking in the list to activate it.

Finaly we come to the CONTROL menu. The REMOTE option let you switch MacAssist over to a remote control mode so it can control a copy of MacAssist running on a nother computer over a network. When you choose REMOTE, you will be asked to select the copy of MacAssist to control. Curently, all Apple Event driven programs that are running on a machine will show up. You can navigate through all the machines on the network to choose which machine has the copy you want to control. Make sure you select ONLY a copy of MacAssist running in local mode (non-remote) and PLEASE make sure you select a copy other that the one you are in now (this will lock things up since a single

copy of MacAssist can not be a host and a client). Selecting LOCAL returns MacAssist to a non-remote control mode.

Bugs and Future Versions

The playing of sound files in MacAssist IS preemptive (interrupt driven) and should not glitch while the computer is off doing other things. However... the triggering of the next item in the play list <u>is</u> cooperative, (does not occur during an interrupt due to a limitation with the current version of the sound manager), and will not occur if you are doing certain things that make the Mac not very cooperative. This means that if you are in a modal dialog box (like the open file dialog) or are in a menu when an item should start playing, nothing will start until you leave the box or menu. A good hint that the Mac is being uncooperative: the remaining time clocks stop counting.

Also very important: **<u>DO NOT</u>** insert a floppy into any drive while a sound is playing! For some reason Apple saw it fit to make disk insertion a very high priority interrupt. So when you insert a disk, all other lower priority interrupts (like sound for example) are kept on hold until the disk insertion is finished being handled.

Other known Bugs:

• No Viryual Memeory
• The latest version of SoundEdit 16 does not properly save AIFF files. Item time for these files can not be edited. This is not my fault!

Version History

1.0 beta   Original beta release. Not very stable.

1.0 beta 2   Fixed numerous crash problems including crashes when quitting. Added code to check times entered by the user. Added code for modifying and saving item times in the play list. Added code to set and save key equivalents. Added code to display file times in the file list. Although not yet Apple Scriptable or linkable, the ground work for it was added. Numerous minor improvements in the user interface, and a bunch of things that I did so long ago, I have forgotten what they are. (But I'm sure they are cool.)

1.0 beta 3   This was intended to be the first non-beta release, but I am running behind so I couldn't finish the apple scripting part. I fixed a bug that limited the play list size, allowed play list files to be added as an item to the play list, had item times in the file area calculated during null events so folders with a lot of items in them would not hold up the user. I also added the segue feature when setting item times and fixed a nasty little bug when reading play list files which would crash the computer   when it couldn't find an item and the user would cancel.

1.0 beta 5   This version was writen for use at WITR only. It fixed bug discovered durring on-   air trials and added support for multiple play lists and nested folder along with other   user interface additions at the request of WITR DJ's.

1.0   So Many changes. I can hardly recall! MacAssist is now fully Apple Event

driven	and remote controlable over an Apple Talk network. It now supports AIFC
files	(AIFF with compression), and more bug fixes than I can count. This is the
	first really stable version and is being used currently at WITR.

Next	In the future I would like to implement looping and previewing as well as support
	for multiple sound output devices (to allow previewing through another set of
	speakers while other things are playing). Making MacAssist Apple scriptable
	should be easy now that it is Apple Event driven. I would also like ability to open
	sound input devices as items to be played. It would be great to make the
triggering	of items preemptive as well. (Hello Apple sound guru's, I have some
questions.)	

Ye 'ol Shareware message

MacAssist 1.0 is shareware. Non-commercial distribution is encouraged, only if MacAssist is distributed with the original compressed archive so that all the files stay together with this file. Commercial distribution requires the express written permission of the author. If you find MacAssist useful, please send $20 to the author at the address below.

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If you have comments, questions or suggestions, I'd love to hear from you. <u>Even if you don't pay I would be greatly encouraged by your feedback. Please drop me a line!</u> If this software is being used at another collage radio station or (Yeah, right...) one of those businesses that make money by hooking a jukebox to a transmitter, I'd really, really like to know.

I can also be reached via Internet E-mail: **eafunk@servtech.com**

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