**READ THIS DOCUMENTATION BEFORE
USING TechTool !!!**

Revision notes are at the end of this document.

About TechTool
TechTool is a handy utility which:

- Rebuilds the desktop. Saves file and folder Get Info comments.
- Zaps the PRAM
- Tests for damaged system files
- Properly cleans your floppy drive (with drive cleaning kit)
- Displays system information about your Macintosh

Welcome to version 1.1.7 of TechTool!
This version of TechTool now covers the US and International versions of system 8.1 and will test that system version for damage.

Added to version 1.1.5 of TechTool, and present in this version, is a feature many users have requested for years: You now have the option to save file and folder Get Info comments before clearing the desktop. This does add some time to the rebuild process however, since we must do a file scan on the disk drive(s) which are having their desktops rebuilt. When you use the Desktop Rebuild option, you'll be presented with a checkbox option which allows you to save file and folder Get Info comments. TechTool will then scan for and save the comments, clear the desktop, and relaunch allowing the finder to rebuild. At this point, TechTool will reload and restore the comments it previously saved. Do remember that if you choose to save Get Info comments TechTool MUST restart your computer so that the restoration routine can be executed. It should be noted here that performing a desktop rebuild on MacOS 8, regardless of whether you choose to save file comments or not, will require a restart of your computer. Apple's new MacOS 8 multithreaded Finder requires a restart for a clean rebuild. We think that this is a bug in the 8.0.0 version of the new Finder and that future updates of the new Finder will not require the restart. Stay tuned.

As of version 1.1.4, TechTool now includes the drive cleaning routine that was employed in our DriveTech™ product. Using a standard 3.5" cleaning disk set, TechTool will *properly* clean your floppy drives. See the instructions below on how to use this new feature. If you have difficulty locating a disk cleaning kit, you can purchase them from MicroMat. See the SPECIAL menu for details. This new feature is pretty cool. If you don't have a cleaning disk handy, you can still check it out with a regular floppy disk. Just press the CLEAN button and then pop in the floppy disk, so you can see what happens. Yes...that is a technically accurate representation of your floppy drive!

TechTool now includes a registration screen. This is a basic name-and-address form

which you can print and then FAX or mail to MicroMat or better yet, save and email to us. Don't cringe! We're not going to ask you for money! TechTool is still a free gift from us to you. We would like to keep a database of TechTool users so that we can inform you of updates as we release them and tell you how to get the latest version. This is important to us because our technical support personnel are supporting many users out there who are still using ancient versions of TechTool. We will also inform you of other cool MicroMat inventions as we release them. Please take a few moments to register your copy of TechTool. This is a small price to pay for this great utility!

IMPORTANT: IF YOU'VE ALREADY REGISTERED A PREVIOUS COPY OF TECHTOOL, IT IS NOT NECESSARY TO REGISTER AGAIN!

Introduction:

DESKTOP DATABASE: One or more invisible files which reside on Macintosh Finder-mountable media and which contain file parent information. Data stored in the Desktop include: file, folder and application icons, type and creator codes and semi-critical directory information. The Desktop is updated on an individual basis each time a new application is introduced (copied or mounted) to a given system. The Finder scans the new application for a BNDL resource, which provides the Desktop database with icon and file type information for the application and its respective document icons. Once the Desktop has been updated for the new application, that application no longer needs to remain present on the system for its document icons to be correctly displayed by the Finder. The Desktop can be globally updated by the user by rebooting the system and holding the COMMAND and OPTION keys simultaneously before the Finder appears.

Rebuilding the desktop is often necessary when documents fail to launch after double-clicking, or when custom icons are unexpectedly replaced with generic document or application icons. The traditional method of holding the option and command keys before the Finder loads will force the invisible desktop file to "rebuild" itself. This is not completely effective if the original desktop file was corrupted, since rebuilding will only yield an updated desktop file which is still damaged.

TechTool provides a better solution to rebuilding the desktop. It actually deletes the original Desktop database(s). The next time the Finder loads, it will create a brand new Desktop file.

PARAMETER RAM: Pronounced "pea-ram", the parameter RAM is a non-volatile RAM chip located on the motherboard of the Macintosh. The PRAM contains user and system-defined settings that must be retained after the computer has been powered off. Settings such as time of day, mouse scaling, keyboard repeat rate, and startup drive preferences are all stored in the upper 64 bytes of PRAM. Below the standard 64 bytes of PRAM lies another 192 bytes of memory which are, for the most part, publicly undocumented. These are secret storage areas that Apple uses for such things as Manufacture Date and Factory Service settings. When these portions of the

PRAM become corrupted with invalid data, odd problems can occur and sometimes the machine will fail to work at all. Traditional PRAM zapping does not clear the lower 192 bytes of PRAM. The only alternative is to remove the PRAM battery, which is often soldered to the logic board. TechTool clears all 256 bytes* of PRAM memory without the need to remove the battery. Once the system is rebooted, the Macintosh ROM will replace the PRAM contents with its default or factory settings.

The Desktop database and parameter RAM have been problematic since the first Macs were released in 1984. This is not due to any wrong-doing on Apple's part. Many third-party software and hardware products often use these semi-hidden areas to store settings or to make custom modifications. While this practice usually causes no problems, Apple frowns upon developer use of these areas since future Macs or system software may need these areas for their own special parameters. This eventual conflict is usually where PRAM and Desktop problems arise.

Another problem which plagues the Desktop and PRAM is bad data, often referred to as corruption. During normal use, the Desktop and PRAM will often be updated by the system, Finder or other applications. In the event that these updates are interrupted for any reason, because of a crash or an extension conflict, the data stored in either area could be written incorrectly. Garbage in, garbage out. In most cases the bad data may not affect anything important or noticeable, but it is possible for vital memory locations and file segments to become damaged, rendering the machine completely useless or riddled with crashes and freezes.

Given the above, many mysterious system problems can arise from problems related to PRAM or the Desktop file(s). TechTool allows you to eliminate any PRAM or Desktop related problems using a method (outlined below) that is a better alternative to traditional techniques.

TIPS

While TechTool has proven to be both safe and reliable, here are some suggestions which could help prevent potential problems:

Don't Use TechTool Like a Shotgun:

Many users will launch TechTool and immediately clear the PRAM and then rebuild the Desktop. While there is technically nothing wrong with doing this, it makes finding the source of the problem more difficult. If the problem is eliminated, you won't know which aspect (PRAM or Desktop) was the source of the problem, which makes locating the potential culprit more difficult. Make one change at a time and test your system to see if the problem has been eliminated. If it hasn't, move on to the next item.

Start With Extensions Off:

While having extensions off is not necessary, it can prevent potential difficulties and make some aspects of using TechTool faster. Rebuilding the desktop with extensions disabled will allow the Finder to rebuild the desktop at its maximum speed. The exception to this rule is Apple's Macintosh Easy Open control panel. This CDEV

maintains a separate desktop database for its own use. If you have and use MEO, you should keep it active when deleting the desktop file. If you do not leave MEO active for the desktop rebuild, it will rebuild the desktop several times.

Always Save PRAM Before Zapping:
Saving the PRAM gives you the ability to undo the zap should a problem occur due to clearing the PRAM.

Always Save Desktop Database(s) Before Rebuilding:
Like saving PRAM data, this is a "just in case" operation. Should something happen during the rebuild (loss of custom icons or missing app icons) you can fall back on your old desktop using the RESTORE feature.

Don't Restore PRAM Unless There's a Problem:
Many users have been confused by the PRAM restore option, believing that after they zap the PRAM they should restore the previously saved PRAM file. This will just place the exact same information back into PRAM, eliminating any benefit gained from the previous zap. Restore should only be used if zapping the PRAM creates a problem and you wish to undo the zap.

Rebuilding Your Desktop

Usage:
- Push the **Rebuild Desktop** button.
- TechTool will prompt you to select the volume(s) containing the desktop to be rebuilt. You can select multiple volumes by shift-selecting the volume names.
- Check the **Save Info Comments** checkbox to save and later restore both file and folder info comments.
- For file safety reasons, TechTool will not function when other applications are active. A dialog box will appear warning that TechTool must tell other applications to exit. TechTool will send an Apple Event Quit command to any active application other than TechTool. Some applications ignore Apple Events, so you may have to quit them manually. HP Backgrounder, a Hewlett Packard printing extension will NOT respond to AE Quit, so you will need to restart with extensions disabled (shift key down) to bypass HP Backgrounder.
- TechTool will then delete the selected desktop files.
- The new desktop files will be created by the Finder after quitting TechTool. IF YOU ARE USING SYSTEM 8 OR ABOVE, THE COMPUTER WILL BE RESTARTED AUTOMATICALLY BEFORE THE REBUILD OCCURS. Sorry, this is a requirement with the MacOS 8.0.0 Finder to maintain the integrity of the Destop files.
- System 7.5 users may find that the desktop(s) will be rebuilt twice. Macintosh Easy Open requires a second rebuild of its own.

Potential Side-Effects:
- File and folder Get Info comments will be lost unless you select Save Info Comments.
- Documents that have lost their parent applications will become generic document icons.

- Users of SpaceSaver™ and other "live" compression programs should make sure that these programs are enabled before the desktop is rebuilt. Many live compression programs modify the desktop file to utilize their custom icons.

Zapping Your PRAM

Usage:
- Push the **Zap PRAM** button.
- You'll be prompted to SAVE the PRAM data before zapping it.
- A dialog box will appear warning that TechTool must tell other applications to exit. TechTool will send an Apple Event Quit command to any active application other than TechTool.
- TechTool will set all PRAM bytes to 0 and then force the system to restart (the system doesn't like having active PRAM data tweaked).
- Factory default settings will be restored on the next restart.

Potential Side-Effects:
- Budget Apple color monitors and some VGA monitors may change to a green tint. This is due to a bug in some Mac PRAMs and will occur if you use TechTool or zap the PRAM any other way. Apple has remedied this with the Basic Color Monitor extension available from most online services.
- Color desktop patterns may refuse to appear after zapping the PRAM with or without TechTool. This is another PRAM bug on some Macs. The cure is to open the Monitors control panel, select Black & White and then reselect your color setting.
- Virus programs may try to prevent TechTool from zapping the PRAM. If this occurs, temporarily disable your virus detection program.
- Color-capable Macs may revert to 1-bit B&W, the factory default setting.
- 32-bit addressing may revert to 24-bit addressing, if that is the factory default setting. Newer systems will remain at 32-bit addressing. If you have more than 12M of RAM and you find that your system is "eating" all of your RAM, you need to enable 32-bit addressing at your Memory CDEV.
- StartUp Device will revert to SCSI ID 0, the factory default setting.
- The printer port will revert to AppleTalk Active, the factory default setting. If you use a non-AppleTalk printer, it may print a page of gibberish before you deactivate AppleTalk.
- Mouse speed will revert to Tablet (super-slow), the factory default setting.
- Adjusting Control Panel and Chooser settings will correct the above problems.

TechTool can save your PRAM settings to disk. If you have any trouble with your system after zapping the PRAM, relaunch TechTool and select the **RESTORE** button. Original settings prior to using TechTool will be restored, provided that you saved this data before zapping.

WARNING:
Some of you might wonder what will happen if you save the PRAM data from one

model Macintosh and restore it to another model. This is not advised. It could render the other Mac unbootable, forcing you to have to disassemble the machine and remove the PRAM battery.

Manufacture Date & Hours of Use (mandate):
The first time the Macintosh computer is activated at Apple's factory, the date is stored in the PRAM. Likewise, an ongoing timer begins counting total computer usage by increments of 5 minutes. This means you have a virtual "odometer" built right into your Mac. TechTool displays both the Manufacturer Date and Total Hours of Use. Before TechTool clears the PRAM, it stores the mandate into the TechTool Preference file. When you reboot, TechTool will automatically launch itself and restore the mandate information.

Caveats:
• Apple did not implement storage of this data until the release of the Macintosh IIci. All models manufactured prior to the IIci will not display this information.
• If the battery has been removed from the logic board, this information will no longer be valid.

Cleaning your Floppy Drive

Did you know that next to system and extension problems, *faulty floppy drives are the #1 menace to Macintosh users?* The average replacement cost for a new or refurbished floppy drive is between $200 and $350! The sad irony of this expensive repair is that it could have been avoided. The failure was likely caused by a microscopic piece of dust. Not the dust you obtain by taking your PowerBook out for a ride in the Jeep, but the airborne dust common to even the cleanest environments. **If you don't believe it, grab a flashlight and take a peek inside your floppy drive slot.** Surprise! Unless your Mac is fresh off of the assembly line, you're going to see dirt...and probably lots of it!

Something else to consider when your drive is dirty: all of your floppy disks are being exposed to data-damaging dirt. Think about it. Your only backup, your master program disks, the work disk you brought home to complete are all being damaged by the dirt resident in your floppy drive.

By using TechTool's disk cleaning feature on a regular basis, you remove the harmful dust particles that damage your drive's precious read/write heads. You say you already have a disk cleaning kit? **You could be doing MORE damage to your drive if you're using a regular kit.** Here's why:

Floppy drive cleaning kits are available everywhere. The standard package includes the felt cleaning disk and a small bottle of cleaning solution. What you do is put some fluid on the disk, insert the disk into your Mac and when your Mac says, "This disk is unreadable...", you try to initialize the cleaning disk. Repeat this several times and the drive should be clean, right? Wrong. What happens is the read/write head remains stationary at its home position (track 0). Since the heads never move during the cleaning, the dirt that was picked up on the last pass in now being wiped over and

over the drive heads again and again, literally scraping the head surface like sandpaper! It's like having a cold and reusing the same Kleenex over and over and over again.

TechTool's disk cleaning feature literally sweeps the dust away from the heads. This sweeping motion not only prevents the repass of dust described above, but **extends the life of the cleaning disk** by using the entire cleaning surface, not just the 1/16th of an inch located at track 0.

Disk cleaning kits are available at most electronic and computer stores. You'll need the 3.5" size. Ignore any references to other platforms. These kits work on ALL 3.5" drives. If you have trouble locating a cleaning kit, MicroMat carries a line of quality cleaning kits. See the SPECIAL menu option for details.

Cleaning Instructions:
- **Place 2 to 6 drops of cleaning fluid on the cleaning disk's felt pad.**
- **Press the CLEAN button on the TechTool main screen**
- **TechTool will prompt you to insert the cleaning disk.**

As TechTool cleans the drive, you will see an animated graphic of the sweeping process that TechTool utilizes. You might hear an abrasive sound as the TechTool sweeps the drive. This does not mean that the diskette is harming your system. In fact, the cleaning fabric is less abrasive than industry specifications for actual magnetic recording media. TechTool will take approximately 30 seconds to complete the cleaning cycle.

System Information:
TechTool provides a text window which displays a multitude of data relevant to the features of your Macintosh. System version, model name, RAM, ROM and more are displayed. This information is provided by a system global called Gestalt. Much of this information is really only relevant to programmers, but is included because you might find it interesting. By pushing the **Print** button, you can also print this data, which is about two pages worth of information. Using the **Save as...** button will prompt you with a "Save..." dialog and will save the system info to a text file.

The INFO Menu:
TechTool contains a menu which has information about MicroMat products and special offers. Please check out the menu options! If you think TechTool is cool (you probably do if you've read this far) you have to see TechTool Pro. Consider it TechTool on steroids. The "Personalize..." option gives you information on how you can order a TechTool Editor application which allows you to place your own message in the startup/About window (select "About TechTool..." under the Apple menu to see).

TechTool's Future:
TechTool has passed its third birthday and it's still free! We plan to continue adding new features to the program. Watch for updates on your favorite online service or

better yet, REGISTER so we can send you email when a new version becomes available. Don't forget to press the **SPECIAL** button and check out TechTool's commercial brother, TechTool Pro. Definitely the coolest Mac utility we've ever created.

Now if you've bothered to read the docs this far, you're probably someone who gets a good hoot from using TechTool. Want to get new versions of TechTool before everyone else? Want to be a guina pig? Help us beta test the next version (probably version 2, a major doozy)! If you'd like to be a tester, send email to:

listmanager@micromat.com

In the BODY of your email message put:

subscribe TechToolTesters

Though you won't hear back from us right away, you'll definitely hear from us when we start working on the new version.

Help and Contacting MicroMat:
If you have any difficulty with TechTool, chances are it is due to an extension conflict. Having file sharing active has been known to cause oddities on the desktop rebuild. Try restarting with the shift key down to disable extensions and then running TechTool again. Remember that the PRAM settings can be restored to their previous settings (see the Zap PRAM section for details).

Please feel free to call us at our technical support line: 707-837-0444.
When calling, please know the TechTool version number you are using and be sure to call from a Touch-Tone™ telephone.

MicroMat can be reached by E-Mail at:
techsupport@micromat.com

Visit our web page at:
www.micromat.com

Revision History:

1.1.7 3/28/98
Updated DNA to test US & International system 8.1
Minor bug fixes.
Changed TechTool Pro information.

1.1.6 1/26/98
Updated DNA to test US system 8.1

Updated DNA to test International 8.0.0 systems.

Revisions to support OS 8.1 and HFS+.

Added supported systems field to System Analyze progress bar.

Minor cosmetic fixes.

Added Easter egg. Don't ask. We won't tell you. Find it yourself.

TechTool now a registered trademark with Patent & Trademark Office.

1.1.5 8/20/97

Updated DNA to test system 8.0.0

Updated DNA to test non-US 7.6.1 systems.

Revisions to support MacOS 8.

Ability to save file and folder Get Info comments.

Removed a bunch of redundant dialogs.

Hey! TechTool just turned 4 years old! WOW!

1.1.4 4/20/97

Updated DNA to test system 7.6.1

Added new machines to gestalt list.

Modified "Can't test system..." dialog so users don't freak.

1.1.3 2/16/97

Updated DNA to test system 7.6

Added DriveTech floppy cleaning routine.

Updated gestalt model listings.

Made "special" button blink.

Adjusted interface for additional button.

1.1.2 10/17/96

Added system file listing controls.

Added ability to personalize program with pict file.

(with separate purchase of editor)

Added support for system 7.5.5

Added ability to correctly identify Mac clones.

Added new CPU models missing from gestalt.

Added new computer models missing from gestalt.

1.1.1 5/25/96

Revised interface.

Updated system database for system 7.5.3 and

updated other system versions.

Added support for IDE drives.

Added SCSI IDs to drive information.

Added ability to save desktop database(s).

Eliminated the TechTool Init.

Employed TechTool Pro mandate restore routine.

Reformatted system information text.

Added TechTool Pro propaganda screens.

Added buttons for access to INFO menu items.
Updated Macintosh model names.

1.0.9 11/21/95

Updated system database for Open Transport 1.0.8.
General update of system database.
Correct inaccurate gestalt machine identifiers.

1.0.8 10/20/95

Updated system database to test international systems.
Updated system database to test system version 7.5.2.
Fixed occasional –108 error.
Removed annoying "Have you read the instructions?" dialog.
Added a preference file.
Rearranged/renamed several menus.
Updated gestalt machine models.

1.0.7 6/6/95

Added system analyzer feature.
Added save/print option to help screen.
Added save/print to offer screens.
Added save/print for system data.
Added registration screen.
Recompiled as native application.

1.0.6 10/15/94

Fixed bug with deletion of invisible files.

1.0.5 10/12/94

Added hard drive data to information screen.
Moved initial start screen to a Help menu.
Added new about box which user can customize (with purchase of editor).

1.0.4 3/14/94

Added system information screen.
Added saving of PRAM data to disk.
Removed forced restart from DT rebuild.
Added Power Macintosh compatibility.
Added additional restart after deletion of mandate init.

1.0.3 9/1/93

Displays Manufacture Date and Hours In Use.
Will restore PRAM bytes which hold this information.

1.0.2 8/14/93

Now makes sure no other items are active. Should correct
problem with File Sharing and/or other extensions being on.

1.0.1 8/10/93
Repaired Finder/AE bug

1.0.0 8/8/93
Initial release

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