



FlashAdapter Software User's Manual

Version 2.1.0

Kopsis, Inc.

<http://kopsisengineering.com>

KOPSIS

FlashAdapter Software User's Manual

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Chapter 1

Introduction

The Springboard™ expansion slot is one of the features that differentiates the Handspring™ Visor™ line of PDAs from those of its competitors. And while the Springboard slot is a great idea, it suffers from the fact that it's new, and not yet a widely adopted standard. We are finally seeing availability of a variety of special purpose modules (modems, pagers, MP3 players), but for one of the most obvious needs – memory – the only choice is an 8 MB flash module from Handspring. It's a great module, but it's frustrating to see that you could get 64 MB in CompactFlash™, SmartMedia™, or one of the other popular formats for less money.

To address this need, Kopsis, Inc. developed the FlashAdapter™ reference platform – a hardware design that allows CompactFlash and other flash cards to work in the Springboard expansion slot and a set of software drivers and applications that allow the Visor to use the flash card to store and retrieve databases and applications. With flash cards available in capacities of 128MB or more, you can now carry thousands of applications and databases in a single flash card smaller than a matchbook and copy them to your Visor quickly and easily whenever and wherever you need them.

The following drivers and applications are included in what is collectively referred to as the “FlashAdapter Software”:

- FlashAdapter Library
 - The driver software that provides the core FAT filesystem and interface to the FlashAdapter hardware.
 - FALib.prc
- FlashAdapter File Mover (FAFileMover)
 - The first FlashAdapter application from Kopsis, Inc. FAFileMover's primary purpose is to move databases to or from the flash card.

This is the most fundamental FlashAdapter application. Although it doesn't give you any way to use the databases directly off the card, it will allow you to move them in and out of Visor RAM as needed. The only file manager for the FlashAdapter that does not require VFShelper (see below).

- FAFileMv.prc
- FlashAdapter Utilities (FAUtil)
 - FAUtil provides “low-level” tools for testing the FlashAdapter and flash cards as well as formatting flash cards and setting their volume label. Typically not used very often, but helpful when trouble pops up.
 - FAUtil.prc
- CSpotRun
 - CSpotRun is a freeware reader for databases in Aportis DOC format. The version provided has been modified by Kopsis so that when launched via the CSpotRun plug-in (see below) it can read documents directly from the flash card. This version of CSpotRun is the only doc reader that does not require VFShelper.
 - CSpotRun.english.prc
- CSpotRun Plug-In
 - The CSpotRun plug-in works in conjunction with FAFileMover. With this plug-in installed, when you tap on the name of a document in FAFileMover's file list, a pop-up menu item will give you the option to launch CSpotRun to view the document directly off the CF card.
 - CSpotRunPI.prc
- VFShelper
 - VFShelper is a PalmOS 4.0 compliant VFS manager for the FlashAdapter. It “extends” the operating system on your Visor to provide the same VFS functions for memory card access that the Palm m500/m505, Sony Clie, and HandEra 330 provide. With VFShelper, applications that can access the memory cards on those devices (and are otherwise compatible with the version of PalmOS on your Visor) can also access the flash card in the FlashAdapter. This gives a wide range of third-party applications FlashAdapter support with no changes to the applications themselves.
 - VFShelper.prc

With this collection of software and a FlashAdapter compatible Springboard module, users can easily carry around vast amounts of reference material and/or

applications and access everything quickly and easily. In addition, the MS-DOS[®] compatible file system on the flash card makes it possible to transfer data between your Visor and other devices that support the same type of media such as a digital cameras, laptops, or desktop PCs. And, with the addition of a third-party backup application, the flash card can even be used to backup and later restore your Visor's RAM.

The development of the FlashAdapter technology has lead to a revolution in the way may people use their Visors. No longer constrained the the 8MB of on-board RAM or even the additional 8MB or 16MB of flash provided by Springboard flash modules, your Visor can now be a digital photo album, medical reference, ebook library, road atlas, game system, and more - all at the same time!

Chapter 2

Acknowledgements

Kopsis, Inc. would like to thank our team of beta testers for all of their efforts to uncover bugs as well as provide usability suggestions. They spent the better part of two months flushing out bugs and validating bug fixes ...sometimes testing two or three different revisions a day! It is thanks to their support that we can offer you what we believe to be an extremely stable and reliable release.

Kopsis, Inc. would also like to thank Mark Pierson for contributing the icon artwork that the FAFFileMover and FAUtil application icons are based on.

Last but certainly not least, Kopsis, Inc. would like to thank our families who have suffered through many late nights with our engineers crushing bugs and adding features. Without their patience, this entire project would not have been possible!

Chapter 3

System Requirements

The following are the minimum requirements for using the FAFileMover software:

- Handspring Visor PDA (Visor, Visor Deluxe, Visor Neo, Visor Pro, Visor Platinum, Visor Prism or Visor Edge).
- Memory card adapter Springboard module that is 100% FlashAdapter compatible.

The amount of free RAM you will need on your Visor will vary depending on the type of FlashAdapter you have and which FlashAdapter Software you wish to use. In most cases you will need at least 100KB of RAM free to use the FlashAdapter Software. To update the software on plug-and-play FlashAdapter modules, you will need an additional 300KB free for the ModuleUpdater application.

Note that Kopsis, Inc. does not produce FlashAdapter Springboard modules. We produced the hardware reference design and are actively developing software for it, but actual Springboard modules based on this design are produced by independent hardware vendors. If you need a list of companies that are producing compatible Springboard modules, visit the “Hardware” section of the Kopsis website (http://kopsisengineering.com/fa_hardware.html).

Chapter 4

Compatibility

The FlashAdapter software is designed to work only with the Handspring Visor line of PDAs. This includes the Visor Solo, Deluxe, Platinum, Prism, Neo, Pro, and Edge. This software will *not* work with TRGPro, HandEra, Sony, or Palm PDAs. Those devices have proprietary hardware interfaces to their memory cards that are quite different than the FlashAdapter hardware design.

This software is designed to work with any memory card adapter Springboard module that is 100% FlashAdapter compatible. If you have questions about software compatibility with a particular memory card adapter, contact the hardware vendor.

This software (and the FlashAdapter hardware) does not provide support for CF+ cards. CF+ cards are basically non-memory CompactFlash cards. This includes CF modems, bar code readers, serial ports, etc. However a few CF+ memory cards are available that include extra functionality such as built in USB interfaces. These cards may not be compatible with the FlashAdapter software.

FlashAdapter hardware and software is compatible with IBM's Microdrive line of CF hard drives however a special self-powered adapter is needed since the Microdrive's current requirements exceed what can be provided by the Springboard slot. Contact FlashAdapter module hardware vendors about availability of a Microdrive compatible adapter.

Chapter 5

Installation

There are currently two types of FlashAdapter modules available. The “Classic” design is a completely passive adapter that contains no memory in the module itself. This version is *not* plug-and-play capable. If you have this type of FlashAdapter, see the instructions in section 5.2.

A new FlashAdapter design is now available from some vendors that features flash memory built into the module. The FlashAdapter software can be installed in this memory so that the module can be used in a plug-and-play manner. What this means is that when the module is plugged into any Visor, the FlashAdapter software on the module itself (but not the applications stored on the memory card) will automatically appear in the Visor’s application launcher screen. These applications will run directly from the memory on the module and will not consume storage RAM on the Visor. To install or upgrade the FlashAdapter software in the module’s flash memory, follow the instructions in section 5.1.

5.1 Module Installation

The following instructions describe how to install the ModuleUpdater application on your Visor and how to use that application to install the FlashAdapter Software on your FlashAdapter module. ModuleUpdater is installed on your Visor using the Palm Desktop software provided by Handspring. If you are using an alternate installation tool such as pilot-xfer under Linux or InstallBuddy or Pilot Install under Windows or Mac OS, consult the tool’s documentation for instructions on how to install the files listed in the following instructions.

Note: if you have FlashAdapter software installed on your Visor to use with a non-plug-and-play FlashAdapter module, it will have to be removed. See section 5.2.1 for instructions.

5.1.1 Installing Module Updater

Note: you will need to have at least 300KB of your Visor's internal RAM free to install the ModuleUpdater

Note: if you are upgrading from a version of the FlashAdapter software that includes FAMemManager, you should backup all applications and data that are stored in the user area of the on-board flash. The module updater will attempt to preserve the user area but if the amount of free space is very small or the amount of space required by the system software has increased, the data in the user area may be lost.

1. Make sure that your Visor is properly connected for HotSync with your PC or Mac.
2. Start the Palm Desktop application and click the Install button on the Desktop application's Launch Bar.
3. Click the Start button, highlight Programs, highlight Desktop, and select Install Tool.
4. Verify that the correct user account is displayed in the User box. To change the user account, click the User box and select a user account from the list.
5. Click the Add button.
6. In the Open dialog box, locate the folder where your FlashAdapter software is located. If you received your software on CD-ROM, simply select the CD-ROM drive. If you downloaded your software, select the folder where you extracted the files.
7. Select the following file: ModuleUpdaterApp.prc
8. Click the OK button in the Open dialog box.
9. Click the Done button.

When the HotSync is complete, ModuleUpdater is ready to run. To complete the installation of the FlashAdapter software to the module itself, follow these steps:

1. Plug your FlashAdapter module into your Visor's Springboard slot.
2. Plug a flash card into your FlashAdapter module. *Note that you cannot install the FlashAdapter software on the module without a flash card present.*
3. Locate the ModuleUpdater application in the application launcher on your Visor and tap on its icon to run it.
4. If the module has never been programmed before, the software version listed for the module will be "Not Programmed".

5. If the module has been programmed before, the software version listed for the module must be less than or equal to the Update version.
6. Tap the “Update Now” button.
7. You will be asked if you want to continue with the update - tap “OK”.
8. The update will begin and you will see a progress bar showing how much of the operation is complete.
9. When programming is complete, you will be instructed to reset your Visor - tap the “Reset” button.

When your Visor resets, you will be asked if you want the module to install the latest version of the VFShelper application to your Visor’s internal RAM. Unless you have a specific reason for not installing VFShelper, tap “Yes”. Your FlashAdapter software is now ready to use.

5.2 RAM Installation

The following instructions describe how to install the FlashAdapter Software on your Visor using the Palm Desktop software provided by Handspring. If you are using an alternate installation tool such as pilot-xfer under Linux or InstallBuddy or Pilot Install under Windows or Mac OS, consult the tool’s documentation for instructions on how to install the files listed in the following instructions.

5.2.1 Upgrade Installation

The safest way to upgrade your FlashAdapter software is to use the FAUninstall application to remove all old versions of FlashAdapter software before installing the updated software.

To remove your old FlashAdapter software, follow this procedure:

1. Make sure that your Visor is properly connected for HotSync with your PC or Mac.
2. Start the Palm Desktop application and click the Install button on the Desktop application’s Launch Bar.
3. Click the Start button, highlight Programs, highlight Desktop, and select Install Tool.
4. Verify that the correct user account is displayed in the User box. To change the user account, click the User box and select a user account from the list.
5. Click the Add button.

6. In the Open dialog box, locate the folder where your FAFileMover software is located. If you received your software on CD-ROM, simply select the CD-ROM drive. If you downloaded your software, select the folder where you extracted the files.
7. Select the following file: FAUninstall.prc
8. Click the OK button in the Open dialog box.
9. Click the Done button.

Once the FAUninstall application is installed, find it in the application launcher and tap its icon to start it. Tap the “Remove all FlashAdapter Files” button to remove all the old FlashAdapter databases.

If a database cannot be removed, you will be prompted that you need to run FAUninstall again after your Visor resets. When FAUninstall is done, it will soft-reset your Visor. This is necessary to ensure that all resources that may have been in use by FlashAdapter software are released.

With all the old FlashAdapter software removed, proceed as though you were doing a new installation.

5.2.2 New Installation

1. Make sure that your Visor is properly connected for HotSync with your PC or Mac.
2. Start the Palm Desktop application and click the Install button on the Desktop application’s Launch Bar.
3. Click the Start button, highlight Programs, highlight Desktop, and select Install Tool.
4. Verify that the correct user account is displayed in the User box. To change the user account, click the User box and select a user account from the list.
5. Click the Add button.
6. In the Open dialog box, locate the folder where your FAFileMover software is located. If you received your software on CD-ROM, simply select the CD-ROM drive. If you downloaded your software, select the folder where you extracted the files.
7. Select the following files: VFSHelper.prc, FAFileMv.prc, FALib.prc, and FAUtil.prc. Note: it is very important that you install *all* of these files. If you skip any the FlashAdapter software will not function correctly.
8. Click the OK button in the Open dialog box.
9. Click the Done button.

When the HotSync is complete, FAFileMover is now ready to run. See section 9.1 for instruction on how to start and use the application.

Chapter 6

Registration

Registered users of the FlashAdapter software are entitled to free software updates as they become available. Kopsis, Inc. is continually fixing bugs and improving the FlashAdapter software. Updates are made available as soon as a fix or a new feature is thoroughly tested. This means that there can potentially be several updates a month (though we certainly hope there will be less). In fact, if you just purchased this software (or got it included with your FlashAdapter hardware), chances are good that there is a newer version available. Registered users can opt to receive email notification when updates are available, making it easy to stay current with the latest and greatest software.

Registration is easy and free! Just go to the Kopsis FlashAdapter software registration web page at http://kopsisengineering.com/register_sw.html. You'll need your email address along with the registration code and registration ID provided by your FlashAdapter Software. To view the registration code and ID, start FAUtil and tap the "Registration" button. You'll see the dialog in Fig. 6.1

The registration code appears after "Reg #:" and will look something like "0EBAD0CF-001". The registration ID appears below it and will look something like "7BE9E0F1". Note that all of the digits will be the numbers zero through nine or the letters A through F. Registration codes and IDs will never contain the letters O or I. Follow the instructions on the web site for filling in those items on the registration web page and Kopsis will process your registration and let you know how you can take advantage of your registered user benefits.

If your registration code says "Evaluation Copy", then you are using a trial version of the product and you need to purchase the full version before you can register. Visit <http://kopsisengineering.com> for details on how to purchase the full version of the software.



Figure 6.1: FlashAdapter Registration Screen

Chapter 7

Troubleshooting

If the FAFileMover program will not run or has problems copying files to/from the flash card, one of the following may help resolve the problem:

7.1 Known Problems

Database files on the flash card with names longer than 36 characters (including the “.PRC” or “.PDB”) will not display or copy to the Visor correctly. This problem can only be encountered if you use a PC or Mac to put “.PRC” or “.PDB” files directly on the flash card. All files created on the flash card by FAFileMover are guaranteed to have acceptable names. If you must copy databases from a desktop machine to the flash card, rename any with 36 character or longer names to something shorter. The actual filename is not critical because the database name used when the file is installed on the Visor actually comes from within the file.

Databases whose names contain non-ASCII characters (such as Chinese, Japanese, or Cyrillic characters) may be copied to the flash card and their names will be preserved. However, the names will appear “garbled” if the card is used in a PC or Mac. Likewise, if files whose names contain those characters are copied to the flash card using a PC or Mac, those file names will appear “garbled” if viewed in FAFileMover.

In addition, databases whose names contain multi-byte characters (such as Chinese or Japanese) are not compatible with VFSTManager. Attempts to create files with multi-byte characters in the name on the flash card from a VFS enabled application is likely to fail or have unpredictable results and should be avoided.

Work is in progress on software to correct all of these deficiencies.

7.2 Test for incompatible hacks/OS extensions

Some hacks, OS extensions, and third-party application launchers are known to be incompatible with the FlashAdapter. If you see problems such as a Fatal Error every time you insert a flash card, a software conflict may be to blame.

Testing for conflicts is easy. Simply hold the “Up” button on your Visor while pressing the reset switch on the back with a reset pin (or paper-clip). When your Visor restarts, test the FlashAdapter software. If the problem goes away, then you have a software conflict and will have to try to locate it by process of elimination.

To restore your Visor to its normal operating mode, just do a normal soft-reset.

Note: on some Visor models such as the Prism, you will need to re-install any Handspring OS patches at this point.

7.3 Check for software updates

Kopsis, Inc. makes every effort to release defect-free software. However, the nature of software is such that there is always a chance that a defect will not be uncovered by the testing process. As defects are reported, we correct them and release updated versions of the software. These updates are available free of charge to registered FlashAdapter software users. If you are encountering a problem that might be a software “bug”, and there is a newer release of the software available, please try running that to see if it corrects the problem before reporting the defect to Kopsis technical support.

7.4 Format the flash card

Most flash cards are “formatted” to look like a PC hard disk to the host system. One of the most frequent sources of problems is errors in this MS-DOS[®] disk format. A great many problems can be corrected by re-formatting the flash card.

You can format flash cards on a PC or Mac using a USB card reader or PCMCIA to flash card adapter. If given the option, be sure to do a “quick” format first instead of a “full” format. If the “quick” format fails to resolve the problem, then try a “full” format.

You can also use the FAUtil application provided with the FlashAdapter software. Note that formatting will permanently erase all the files on the flash card so make sure that you have any critical data backed up before taking that step.

7.5 Try the flash card in a different device

If you have a PC or Mac with a USB flash card reader or PCMCIA to flash card adapter, use that to verify that you can read/write files on the flash card. You can also use your system's disk tools to scan the flash card for errors. If you don't have a compatible PC or Mac, you can try the flash card in a device such as a digital camera, MP3 player, or another type of PDA that uses the same type of flash cards. Though a few cards are compatible with other devices that are not compatible with the FlashAdapter, if your flash card *fails* to work in another device, you'll know for certain that the flash card is bad.

7.6 Try a different flash card

A few types of CompactFlash cards have proven incompatible with the FlashAdapter hardware and software. If your CF card works in other devices but fails to work with FAFileMover, you may have such a card. Some CF card FlashAdapter compatibility information is available on the Kopsis website at http://kopsisengineering.com/cf_compat.html. Try a CF card from a different manufacturer. If you try several different CF cards and none work, then you may have a defective FlashAdapter Springboard module.

7.7 Troubleshooting With FAUtil

Included in this software distribution is the FAUtil utility program. The features of FAUtil are described in detail in detail in Chapter 8. The following explains how to use some of FAUtil's features to troubleshoot some flash card problems. If the FAFileMover program will not run or reports an error that indicates there may be a problem with your flash card, you can use FAUtil to perform some specific tests and retrieve more detailed information.

Plug in your flash card and wait for the Visor to recognize it. When the Visor is ready (when it runs the Preferences app on a standard Visor or blinks the screen on a Prism or Platinum), start the FAUtil app. If your Visor hangs, the card is failing to come out of reset. Pull the flash card out and your Visor may come back. If not, it's soft-reset time. In this case your flash card is bad or incompatible. Try a different flash card.

If the main screen for FAUtil comes up, tap the "Test Flash Card" button. Within 20 seconds, you should get a message indicating the status of the flash read tests. If you don't, your Visor is probably locked up. See if you can do anything - if not pull out the flash card. Your Visor may come back but if it doesn't, you'll have to soft-reset. In this case your flash card is bad or incompatible.

If you get a message saying the read tests passed, you have the option of continuing with the write tests. When all tests are complete, you can tap the “View Info Log” button to get extremely detailed flash card information and test results.

If the read and write tests pass then your flash card should be compatible with the FlashAdapter software. If FAFileMover still doesn’t work with your flash card then the “format” information on the card is probably damaged or incompatible. Try formatting the card as described above.

If FAFileMover still won’t work with a freshly formatted card and the FAUtil tests pass, contact Kopsis, Inc. for technical support.

Chapter 8

FAUtil

FAUtil is a small application that contains a collection of FlashAdapter related utilities. With Classic style FlashAdapter modules, FAUtil has the additional job of detecting card/module insertion and removal and dispatching those events to VFSHelper. Though FAUtil used to be an “optional” software component, as of version 2.1.0 of the FlashAdapter software, it must remain installed in the Visor’s RAM for Classic modules (it is always present in the module flash on plug-and-play modules).

FAUtil is designed to be very easy to use. When run, it displays a form with buttons for each of the functions that it offers. To perform one of those functions, just tap the button and follow the instructions. The Fig. 8.1 shows FAUtil’s main form.

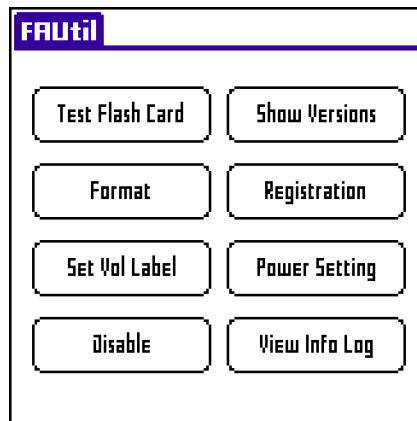


Figure 8.1: FAUtil main form

The following sections describe the functions performed by each button.

8.1 Test Flash Card

Some FlashAdapter problems can be traced to defective or incompatible flash cards. This function provides a way to test the functionality and compatibility of a flash card. Tapping the “Test Flash Card” button will immediately start a series of flash card read tests. A message will pop up indicating that the read tests are in progress. After several seconds the read tests should complete. If any problems are detected, a message will pop up describing the failure.

If the read tests pass, you will be asked if you would like to perform a series of write tests. Because these tests write to the flash card, any failures could lead to loss of data on the card. You should never perform write tests on a card that contains data that you do not wish to lose. The application makes every effort to protect the existing data on the card, but problems can always lead to unexpected behavior.

If you choose to proceed with the read tests, a message will pop up indicating that the tests are in progress. When the tests are complete or a failure is detected, you will see a message to that effect.

If you choose to skip the read tests, then the “Test Flash Card” function is complete.

8.2 Format

The “Format” button will prompt you for the type of format you wish to perform ... “Quick” or “Full”. Both types of format will destroy all the files and directories on the flash card. Note that formatting does not actually “overwrite” all the data on the flash card. It only destroys the information that groups the data into files. If you have sensitive data on a flash card, do not rely on either format operation to erase it.

8.2.1 Quick Format

The “Quick Format” function will erase the File Allocation Tables and root directory on the flash card. This effectively deletes any existing files and directories from the card. However you should keep in mind that the “contents” of the files are not actually erased (the space is just made available for use by new files) so don’t depend on this function to remove sensitive data from the flash card.

Quick Formatting is almost always the best way to format a flash card. A quick format can repair most types of file system damage and you should always try a quick format first before taking more drastic measures such as a “full” format.

8.2.2 Full Format

The “Full Format” function performs the same actions as the Quick Format function. In addition, it rebuilds the Master Boot Record (which contains the partition table) and the boot sector. This is a drastic step and is only necessary in cases of extreme file system corruption. Always try a Quick Format first and resort to the Full Format only if the card remains unusable.

Note that the file system format produced by this function may not be compatible with other devices or desktop or laptop PCs. If you wish to be able to use the flash card in another device, it may be best to use that system’s card formatting tools to format the flash card.

8.3 Set Vol Label

After formatting, the flash card will have a “blank” volume label. The volume label is just an arbitrary 11 character string that can be used to distinguish between different flash cards. Some applications pay attention to the volume label, so you can use this function to set it to some meaningful value.

Tapping this button will bring up the form shown in Fig. 8.2 allowing you to edit the existing volume label.

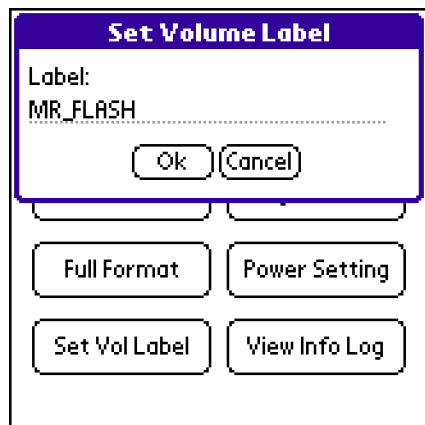
The image shows a graphical user interface for setting a volume label. It consists of a main window with a title bar that says "Set Volume Label". Inside the window, there is a label "Label:" followed by a text input field containing the text "MR_FLASH". Below the input field are two buttons: "Ok" and "Cancel". At the bottom of the window, there are four buttons arranged in a 2x2 grid: "Full Format", "Power Setting", "Set Vol Label", and "View Info Log".

Figure 8.2: Set Volume Label Form

8.4 Disable

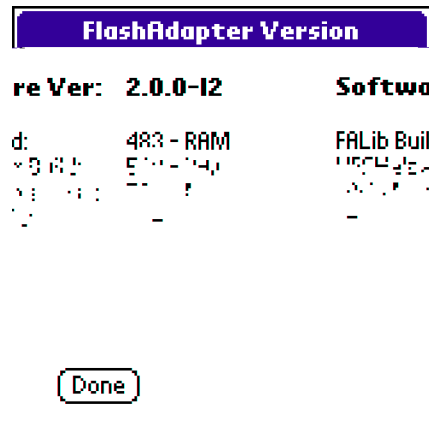
Selecting this function on Classic style FlashAdapters will disable detection of module/card insertion and removal. This is necessary in cases where you want

to manually delete the FAUtil application from your Visor's RAM or if you want to install a newer version of FAUtil without first removing the old version. Except in those situations, there should be no need to disable FAUtil.

On plug-and-play FlashAdapter modules, the "Disable" function has no effect.

8.5 Show Versions

The "Show Versions" button will pop up the form shown in Fig. 8.3 showing the overall version of the FlashAdapter software you have installed. It will also show the versions (actually build numbers) of each FlashAdapter application and where that application resides. FALib and VFShelper will always show as residing in RAM even if you have a plug-and-play FlashAdapter module.



The image shows a screenshot of a software version information window. At the top is a title bar that says "FlashAdapter Version". Below the title bar, there are two columns of text. The left column is headed "re Ver: 2.0.0-12" and lists several items: "d:", "x9 64", "x1 64", and "x2 64". The right column is headed "Softwa" and lists "FALib Buil" and "VFShelper". At the bottom of the window is a button labeled "Done".

Figure 8.3: FlashAdapter Software Versions Form

If you provide this version information when reporting problems to Kopsis support, it will make solving those problems easier.

8.6 Registration

The "Registration" button will display the form shown in Fig. 8.4 containing information you need to register your FlashAdapter software. Go to the registration web page at http://kopsisengineering.com/register_sw.html and use the information below to complete the registration form for your FlashAdapter.

The registration code appears after "Reg #:" and will look something like "0EBAD0CF-001". Follow the instructions on the web site for filling in those items on the registration web page and Kopsis will process your registration and let you know how you can take advantage of your registered user benefits.



Figure 8.4: Registration Form

If your registration code says “Evaluation Copy”, then you are using a trial version of the product and you need to purchase the full version before you can register. Visit <http://kopsisengineering.com> for details on how to purchase the full version of the software.

8.7 Power Setting

Some flash cards (particularly CompactFlash) allow you to select the power level they should run at. Higher power levels are faster but will drain batteries quicker. The range available depends on the flash card itself. For example, a 4MB Kodak card offers two settings, 28mA to 32mA, while a 64MB SanDisk card offers 8 settings from 48mA to 76mA average peak current.

Tapping the “Power Setting” button will display the prompt shown in Fig. 8.5 allowing you to select which power setting you wish to use. The selection you make here will apply to all FlashAdapter and VFS applications.

The FlashAdapter Software defaults to the lowest power setting. By changing this setting you can make it default to the maximum speed setting. On cards with a small range of settings, it may not make much difference. But on a SanDisk card, selecting “max speed” reduced write times by 41%!

8.8 View Info Log

The flash card read/write tests in FAUtil produce a large amount of diagnostic output. This information is quite technically detailed and is of little interest to most users. However, it does contain some information that may occasionally

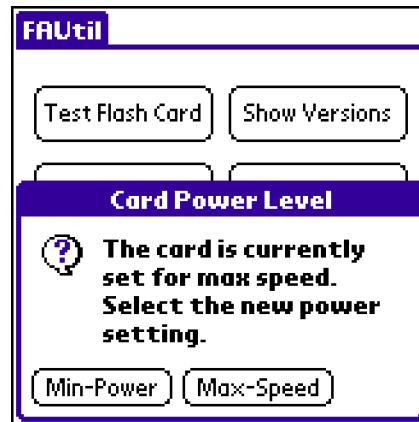


Figure 8.5: Power Setting Prompt

be of interest such as the “real” manufacturer of your flash card and information about how the card is formatted. Some of the information may also be required to troubleshoot FlashAdapter problems.

Rather than display the data during testing, FAUtil saves it in a test log for later examination if necessary. Tapping the “View Info Log” button will display the information in the test log. A sample of the Info Log display is shown in Fig. 8.6. Note that the actual values displayed for the various fields will be different for different types of flash cards.

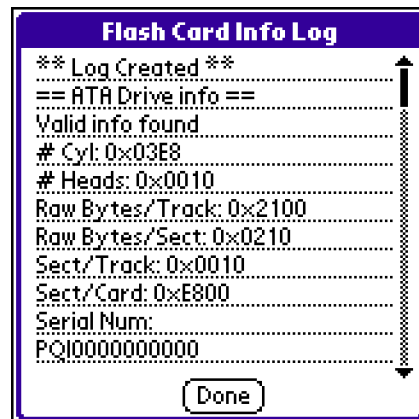


Figure 8.6: Info Log Form

Chapter 9

FAFileMover

FAFileMover is a simple database management application. It was primarily designed to provide the ability to move databases between internal Visor RAM and the flash card in your FlashAdapter module. FAFileMover also gives you that ability to delete databases from RAM and the flash card as well as create and delete directories on the flash card.

Because of FAFileMover's simplicity, it does have some important limitations. The most significant is that it will not display (or allow you to perform operations on) any file on the flash card that is not a Palm database with a ".PRC" or ".PDB" extension. Another limitation is that it will not allow you to move or copy files from one directory on the flash card to another. If you need these capabilities, you will want to investigate one of several third-party VFS based file managers that are currently available.

While FAFileMover is not as feature-rich as some of the third-party VFS based file managers, FAFileMover is the only FlashAdapter database management application that can be used without VFS. FAFileMover is designed to be easy to use and extremely fast, so even though it lacks some important features, we think many FlashAdapter owners will still find it extremely useful.

9.1 Quick Start

9.1.1 Prepare the hardware

Install your FlashAdapter Springboard module and plug in a flash card. Note that some FlashAdapter Springboard modules have the flash card built in. In that case you should make sure that yours has its flash card properly installed before using it the first time.

9.1.2 Start FAFileMover

Locate the FAFileMover icon in the application launcher and tap it to start the program. The main form should appear showing a list of all the databases in your Visor's RAM.

If you attempt to start FAFileMover without the Springboard module or flash card present, it will give you an error message and then exit.

9.1.3 To copy a file to the flash card

1. Tap the "RAM" button at the top right of the screen and wait for the database list to appear.
2. Locate the database that you want to copy to the flash card in the list of databases and check the box to the left of its name.
3. Tap the "Copy" button. Progress indicators will show you what's happening and a message will pop up when the operation is complete.

9.1.4 To copy a file from the flash card

1. Tap the "Card" button at the top right of the screen and wait for the file list to appear.
2. Locate the file that you want to copy to your Visor's internal RAM in the list of files and check the box to the left of its name.
3. Tap the "Copy" button. Progress indicators will show you what's happening and a message will pop up when the operation is complete.

9.1.5 To delete a database or file

1. If you want to delete a database from Visor RAM, tap the "RAM" button at the top right of the screen and wait for the database list to appear.
2. If you want to delete a file from the flash card, tap the "Card" button at the top right of the screen and wait for the file list to appear.
3. Locate the database or file that you want to delete in the list and check the box to the left of its name.
4. Tap the "Del" button. A message will pop up asking you to confirm the deletion. Progress indicators will show you what's happening and a message will pop up when the operation is complete.

*Warning: deleted databases and files **cannot** be recovered! Be absolutely certain that you want to delete the selected database or file before proceeding.*

*Warning: deleting a database required by an application can render that application inoperative. Furthermore, deleting certain databases required by the PalmOS can render your Visor inoperative and cause you to lose all the information on it. Be **very** careful only to delete databases that you know are safe to remove!*

9.2 Plug-ins

Plug-ins are small applications that add functionality to FAFileMover. When you tap on the name of a file in FAFileMover, a pop-up list is displayed with all of the plug-ins that are capable of doing something with that file. If you tap the name of one of the plug-ins, that plug-in will run using the file that you had selected. This gives developers the ability to write applications that access files on the flash card without having to include functions to list files and traverse the directories. See Kopsis' web-site for additional information about the plug-ins available for FAFileMover.

9.2.1 CSpotRun Plug-In

CSpotRun is a freeware document reader for text databases in the popular Apertis DOC format. Kopsis has modified CSpotRun to allow it to read DOC files directly off the flash card without first copying them to RAM. This makes using ebooks and reference documents stored on the flash card much more convenient.

The CSpotRun Plug-In is the "glue" that lets you select a DOC file in the FAFileMover file list and then launch CSpotRun using that DOC file. To use this plug-in, both the plug-in and the Kopsis version of CSpotRun must be installed. If you have a plug-and-play FlashAdapter, this happens automatically when you plug the module with a flash card into the Springboard slot. If you do not have a plug-and-play FlashAdapter module, follow these instructions.

Note: if your FlashAdapter module is plug-and-play capable, then you do not need to go through these steps.

1. Make sure that your Visor is properly connected for HotSync with your PC or Mac.
2. Start the Palm Desktop application and click the Install button on the Desktop application's Launch Bar.
3. Click the Start button, highlight Programs, highlight Desktop, and select Install Tool.

4. Verify that the correct user account is displayed in the User box. To change the user account, click the User box and select a user account from the list.
5. Click the Add button.
6. In the Open dialog box, locate the folder where your FAFileMover software is located. If you received your software on CD-ROM, simply select the CD-ROM drive. If you downloaded your software, select the folder where you extracted the files.
7. Select the following files: CSpotRun_english.prc, FACSpotRunPI.prc
8. Click the OK button in the Open dialog box.
9. Click the Done button.

When the HotSync is complete, you can begin using the CSpotRun Plug-In. To do so, run FAFileMover and then locate a DOC file on your flash card. *Note: all DOC files will have a “cre8” value of “REAd”.* Tap on the file and select “CSpotRun” from the pop-up list. CSpotRun will run and display the document. When you are done reading the document, tap the App silkscreen button and you will return to FAFileMover where you can select another document or perform any other operation.

Note: if you start CSpotRun directly from the application launcher, it will not be able to see any documents on the flash card. The flash capabilities are only enabled when CSpotRun is launched from within FAFileMover.

9.3 User Reference

9.3.1 Main Form

The main form is displayed as soon as FAFileMover is started. It contains the database/file list and all the basic controls for FAFileMover’s functions. Fig. 9.1 shows the appearance of the main form and labels all of it’s controls. The following sections describe each of these controls.

RAM|Card Selector

Use this button to control whether the contents of Visor RAM or the flash card are displayed. When “RAM” is selected, the databases in the Visor’s internal RAM are displayed and the “Copy” button serves to copy them to the flash card. When “Card” is selected, the files on the current directory of the flash card are displayed and the “Copy” button serves to copy them to the Visor’s internal RAM.

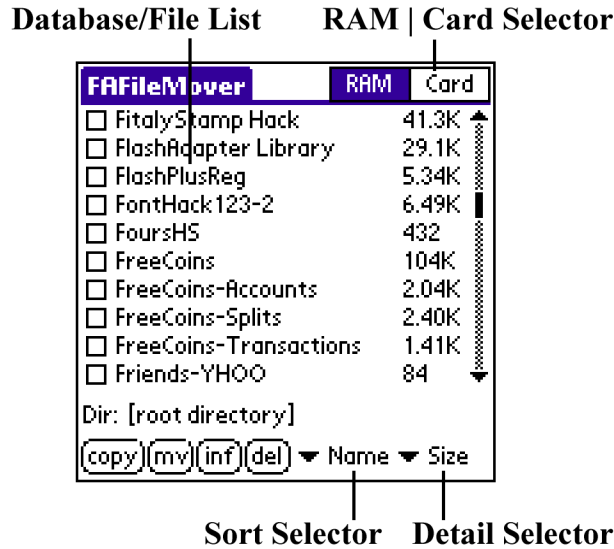


Figure 9.1: Main FAFileMover Screen

Database/File List

The main list shows either the databases in the Visor’s internal RAM or the files on the flash card depending on the state of the “RAM|Card” Selector (see above). In the case of files on the flash card, only those files ending in a “.PRC” or “.PDB” extension are displayed. The flash card may contain other types of files without affecting FAFileMover operation, but since these files are not PalmOS databases, they are not accessible to FAFileMover.

When viewing the flash card, the main list also shows subdirectories within the current directory. Tapping on a subdirectory name will take you into that subdirectory. The main list will be updated to show the contents of the subdirectory and the subdirectory will become the “source” or “target” of all copy operations.

When displaying a subdirectory, the main list will show two special entries: [parent directory] and [root directory]. Tapping on [parent directory] will return you to the parent of the current subdirectory. Tapping on [root directory] will take you directly to the root directory of the flash card regardless of how many subdirectories deep you are.

Each database or file entry in the list consists of a check-box, the database or file name, and a field displaying information (size, type, or creator) about the database or file. Which database detail is shown in this info field is controlled by the “File/Database Detail Selector” described below.

When the check-box is “checked”, that file or database will be copied or deleted when the “Copy” or “Del” buttons are tapped. Any number of databases/files may be selected. Performing a “Copy” operation will not clear the selections. This makes it possible to do a move operation by selecting the databases/file, tapping “Copy”, then tapping “Del” without the need to re-select everything. Switching between “RAM” and “Card” views will clear the selections. It is possible to select or de-select all the databases/files in the list using the “Select | All” and “Select | None” menu items.

You can make the database/file list jump to a specific item by entering the first few characters of the database/file name using graffiti or an external keyboard. Scrolling the list manually using the scrollbar or hardware up/down buttons clears the previously entered characters so that subsequently entered characters will start a new “search”.

Dir Name

The “Dir Name Field” displays the path to the current flash directory. If the path is too long to display, the first portion of it will be truncated. On flash cards with many levels of subdirectories, this information helps you keep track of which directory is currently selected for move operations. The use of subdirectories can make managing the files on your flash card much easier. Single directories containing a large number of files are unwieldy. Grouping files into logical directories makes locating them much easier. Also keep in mind that there is a limit to the number of files a flash card can contain in its root directory. This limit depends on the length of the file names and is typically around 150 files. Subdirectories have no limit on the number of files they can contain, so to take full advantage of high capacity flash cards, you will need to use subdirectories.

One additional subdirectory caveat is that although subdirectories remove the limitation on the number of databases you can have on the flash card, you will want to be careful about how you use them. Having a lot of files in on subdirectory **really** slows down operations on that directory. The best approach is to use many subdirectories to group your databases so that the number of databases per subdirectory remains manageable.

Copy Button

Tap the “Copy” button to copy the selected databases or files to the flash card or the Visor’s internal RAM. The operation performed is based on the state of the “RAM|Card” selector described above.

Info Button

Tap the “Info” button to show the “Storage Info” dialog (described below). This function is also available via the “Info | Memory Usage...” menu item.

Del Button

Tap the “Del” button to delete the selected databases or files from the flash card or the Visor’s internal RAM. The operation performed is based on the state of the “RAM|Card” selector described above.

*Warning: deleted databases and files **cannot** be recovered! Be absolutely certain that you want to delete the selected database or file before proceeding.*

*Warning: deleting a database required by an application can render that application inoperative. Furthermore, deleting certain databases required by the PalmOS can render your Visor inoperative and cause you to lose all the information on it. Be **very** careful only to delete databases that you know are safe to remove!*

Sort Selector

The “Sort Selector” is the leftmost of two pop-up lists at the lower right of the main form and controls how the database list is sorted. Tap it to bring up a list of options, then select the desired option.

The first choice, “Name”, will cause the list to be sorted alpha-numerically by database or file name.

The second choice, “Info”, will cause the list to be sorted based on what is currently displayed in the “detail” column. If that column is displaying size, the list will be sorted by size. If that column is displaying “type” or “creator”, the list will be sorted accordingly.

The third choice, “None”, will cause no sorting to be done when the list is displayed. If the list is already sorted, it will remain so after selecting this option. But any action that causes the list to be re-displayed, will result in the items being listed unsorted.

Some notes on sorting: Sorting by name does a true alphanumeric sort so that the databases will appear in the list in true alphabetical order. In order to speed up the sort, sorting by “type” or “creator” doesn’t do a true alphabetical sort on those fields. Instead, the four character “type” or “creator” is converted to a number and the databases are sorted according to those numbers. What this means is that all files of the same “type” or with the same “creator” will appear together, but the order in which those identifiers appear may not be

truly alphabetical. Since the real purpose of sorting by these fields is to see all the databases that belong to a particular application, this works quite well.

File/Database Detail Selector

The “File/Database Detail Selector” is the rightmost of the two pop-up lists at the lower right of the main form and controls what is displayed in the “detail” column of the database/file list. Tap it to bring up a list of options, then select the desired option.

The first choice, “Size”, displays the size of the database or file.

The second choice, “Type”, displays the database type assigned when it was created. Database types are four character names that give an indication of the database function. Examples are “appl” for an application, “DATA” for an applications data, “libr” for a shared library component, etc.

The third choice, “Cre8”, displays the “creator ID” assigned when the database was created. Creator IDs are four character names that are registered with Palm, Inc. and are guaranteed to be unique for each application. Most applications tag all the databases they create with the application’s creator ID, so if you want to see all the databases that belong to a particular application, display and sort by the creator ID.

9.3.2 Menus

Most basic FAFileMover operations can be performed using the buttons on the main form. Less commonly used operations are accessed from the main form’s menus. FAFileMover’s menus are shown in Fig. 9.2.

Select – > All

This menu item will cause all the databases/files in the main list to be selected. This makes it easy to perform operations such as copying all the files in a subdirectory on the flash card to RAM.

Select – > None

This menu item will cause all the databases/files in the main list to be unselected.

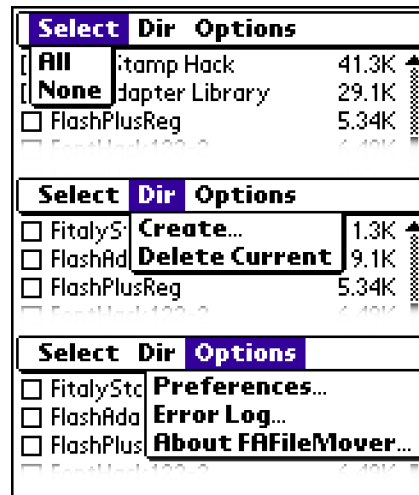


Figure 9.2: FAFileMover Menus

Dir – > Create...

This menu item will allow you to create a subdirectory within the current flash card directory. Selecting this item will display the Create Directory form.

Dir – > Delete Current

This menu item will delete the current flash card directory. The directory must be empty or this operation will fail with a warning.

Options – > Preferences...

This menu item will allow you to change FAFileMover preferences. Selecting this item will display the Settings form.

Options – > Error Log...

This menu item triggers the collection of data useful for debugging FAFileMover problems and displays the FAFileMover error log. There is no need to use this function unless instructed to do so by Kopsis technical support.

Options – > About FAFileMover

This menu item displays information about FAFileMover including the software version, registration number, and contact information for Kopsis, Inc.

9.3.3 Create Directory

Fig. 9.3 shows the create directory dialog. The following sections describe each control in that dialog.

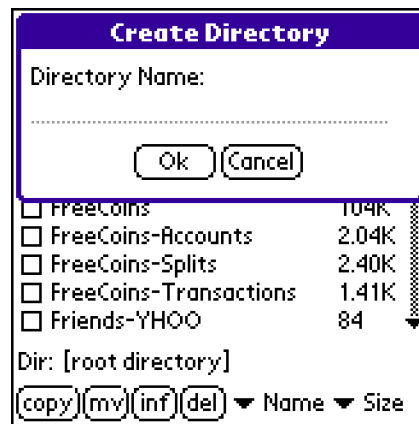


Figure 9.3: Create Directory Dialog

Name Field

Use this field to enter the name for the new directory. The directory name may be up to 32 characters long. The name may contain letters, numbers, spaces, hyphens, and periods. Avoid other punctuation as it can make the directory inaccessible if the flash card is used in a PC or Mac.

Ok & Cancel Buttons

Tapping the Ok button will cause the directory to be created. Tapping the Cancel button will return you to the “Change Directory” dialog without creating a new directory.

9.3.4 Storage Info

Fig. 9.4 shows the storage info dialog. The following sections describe each field in this dialog.

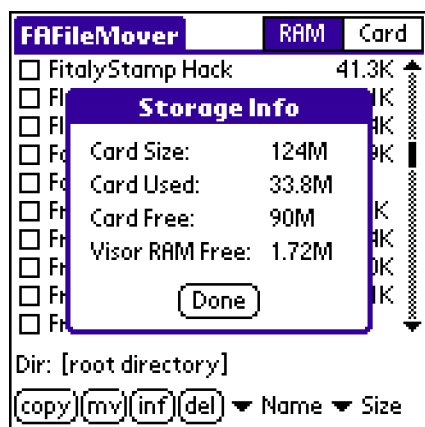


Figure 9.4: Storage Info Dialog

Flash Card Size

This shows the maximum *formatted* capacity of the flash card. This is displayed in “true megabytes” where a megabyte is 2^{20} bytes (1,048,576). This may be smaller than the “advertised” size of your flash card. Some capacity is always lost due to formatting. In addition, some manufacturers quote sizes using 1,000,000 bytes for a “megabyte”. So, for example, a 16MB card that is actually 16,000,000 bytes will show a size of 15.2M or less here.

Flash Card Used

This shows the amount of space that is used on the flash card. This number is displayed in bytes, kilobytes (1K = 1024 bytes), or megabytes (1M = 1,048,576 bytes) as appropriate.

Flash Card Free

This shows the amount of space that is still available on the flash card. This number is displayed in bytes, kilobytes (1K = 1024 bytes), or megabytes (1M = 1,048,576 bytes) as appropriate.

Visor RAM Free

This shows the largest block of free storage RAM available on the Visor. This number is displayed in bytes, kilobytes (1K = 1024 bytes), or megabytes (1M = 1,048,576 bytes) as appropriate. This may not be an accurate indication of the total free storage RAM, but it does indicate the largest single chunk that can be allocated. If the files you want to copy to the Visor are smaller than this, then the copy should succeed.

9.3.5 Settings

Fig. 9.5 shows the settings dialog. The following sections describe each control in this dialog.

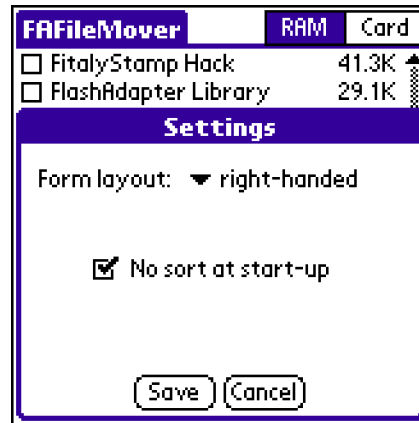


Figure 9.5: Settings Dialog

Form Layout Selector

Two versions of the main form are available. The default places the scrollbar on the right. An alternative view is available that places the scrollbar on the left to better suit left-handed users (though some right-handed users may prefer this view too).

No sort at start-up Option

If this is checked, FAFileMover will always start with the sort option set to "None". If this is unchecked, FAFileMover will always start with the sort option you had selected when you last exited. If you want to be able to quickly get in and out of FAFileMover, check this option (you can always turn on sorting once

you're in). If you want FAFileMover to always start with the last sort mode, then un-check this option.

Chapter 10

VFSHelper

10.1 Introduction to VFS

Welcome to the wonderful world of VFS! What is VFS? VFS stands for “Virtual File System”. It is a set of operating system functions that Palm has defined to allow applications to access data stored on removable memory. If, for example, an application wants to read a record from a database stored on a removable media card, it simply uses the function “VFSFileDBGetRecord”. That function will work on any hand-held device that provides VFS functions. This makes it easy for developers to add memory card support to their applications without having to deal with a different set of card access functions on different brands of Palm devices.

VFS is built in to Palm OS 4.0 on the Palm m500 and m505. In addition, Sony and TRG have both added VFS functions to their PDAs. With the advent of Kopsis’ VFSHelper application for the FlashAdapter, Visor owners can also enjoy the benefits of VFS enabled applications.

Unlike solutions that trick applications into seeing database stored on memory cards (AutoCF, PiDirect, MsMount), VFS only makes data available to applications that “understand” the concept of removable storage. Many popular applications that have large data requirements already support, or will soon support VFS. While that does limit the number of applications that can take advantage of removable storage, it does let the applications that understand it use it in more efficient ways. It also gives applications the ability to both read *and* write to the memory card - something that is not possible with other direct access solutions.

There are two ways to take advantage of VFS. One is to use a VFS enabled third-party launcher to let you launch applications that are stored on the flash card. The other is to keep the “data” databases for VFS enabled applications

on the flash card. Both of these techniques will be described in detail later in this chapter.

10.1.1 A Note about OS 3.1

Although VFSHelper is fully compatible with PalmOS 3.1 (Visor and Visor Deluxe), a number of developers assume that VFS only exists on newer (OS 3.5) PDAs. As a result, some VFS applications won't even try to run unless they detect OS 3.5 or higher. Kopsis can't do anything about that. If you encounter such an application, you need to contact the developer and inform them that you have an OS 3.1 device with VFS support and you would like to use their application on it. Whether they choose to add OS 3.1 support is up to them.

In addition, some applications may appear to work fine on an OS 3.1 Visor but will encounter problems if you try to use their VFS capabilities. In that case, use the FlashAdapter discussion forum at <http://groups.yahoo.com/group/flashadapter-forum> to find out if users of the same application on OS 3.5 Visors are encountering the same problem. If not, it's probably an OS 3.1 compatibility issue and you'll have to contact the application developer about supporting VFS on OS 3.1.

10.1.2 A Note about Applications Without VFS Support

Kopsis cannot add VFS support to existing applications. We provide the VFS drivers, but developers have to modify their applications to actually use VFS. Please do not contact Kopsis to request that VFS support be added to someone else's application. Instead, contact the developer of that application and request that they add support for SD cards on the Palm m500/m505. Applications with SD card support should also work with our VFS software.

10.2 Installing VFSHelper

10.2.1 Non-plug-and-play FlashAdapters

Users with plug-and-play FlashAdapters (such as the InnoPocket FlashPlus) should skip to section 10.2.2. The VFS portion of the FlashAdapter software is "optional" but highly recommended. Without it, you can still use FAFile-Mover to manually copy databases to and from the flash card, but third-party applications will not be able to access the card.

1. Make a backup (using your choice of tools) your Visor and your flash card.
2. Soft-reset your Visor.

3. Make sure that your Visor is properly connected for HotSync with your PC or Mac.
4. Start the Palm Desktop application and click the Install button on the Desktop application's Launch Bar.
5. Click the Start button, highlight Programs, highlight Desktop, and select Install Tool.
6. Verify that the correct user account is displayed in the User box. To change the user account, click the User box and select a user account from the list.
7. Click the Add button.
8. In the Open dialog box, locate the folder where your FAFileMover software is located. If you received your software on CD-ROM, simply select the CD-ROM drive. If you downloaded your software, select the folder where you extracted the files.
9. Select the following file: VFSHelper.prc
10. Click the OK button in the Open dialog box.
11. Click the Done button.

10.2.2 Plug-and-play FlashAdapters

1. Insert your FlashAdapter module and a flash card.
2. The on-board software will detect that you do not have VFSHelper installed and ask if you would like to install it.
3. Answer "yes" and VFSHelper will automatically be installed on your Visor.

Note that because VFSHelper is an operating system extension, it will remain in your Visor's RAM even after the FlashAdapter module is removed. When you plug in your FlashAdapter module again, it will detect that VFSHelper is already installed and it will not prompt you to re-install it unless the version on your FlashAdapter module has been updated.

10.3 Running the VFS Software

Fig. 10.1 shows the screen you will see when you run VFSHelper. The controls in VFSHelper are designed to be simple and easy to understand.

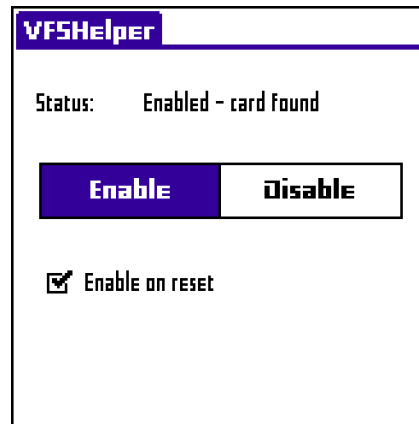


Figure 10.1: VFSHelper Main Screen

VFS must be “enabled” before it will do anything. Select “Enable”. That’s all there is to it. You do *not* have to have a FlashAdapter module installed to enable/disable the VFS software.

You can disable VFSHelper by selecting “Disable”. It is normally only necessary to disable VFSHelper if you encounter a conflict with another application or Springboard module.

When the VFS software is enabled, it will automatically detect installation/removal of a flash card (or FlashAdapter module). You will hear two tones (if you have system sounds enabled) indicating the state of the flash card. A “low high” tone sequence means the flash card is available and being managed by VFS. A “high low” tone sequence means that the flash card is not available. If you have problems getting a flash card recognized, use FAUtil and FAFile-Mover to verify that your adapter is working and the flash card is correctly formatted.

The VFS software has the option of automatically enabling after a soft-reset. If you select this option, VFSHelper will try to enable any time your Visor resets. If you do not select this option, you must always manually enable VFS any time your Visor resets.

There is a chance that if VFSHelper is set to automatically enable and it encounters a problem that causes a reset, you may have difficulty getting your Visor past the reset process. If this happens, simply do a soft-reset while holding down the “up” button. When your Visor completes the reset, run VFSHelper and un-select the “Enable on reset” option. Then do a normal soft-reset and your Visor should work normally.

10.4 Applications on flash card

The number of useful Palm applications is growing every day, and the size of those applications is growing as well. Keeping some of your applications on a flash card is a great way to free up Visor RAM for your most critical applications and databases. In the past, file mover software allowed you to manually copy applications from flash card to RAM when you needed them. With Kopsis' VFS software and a VFS enabled launcher, that process becomes transparent. You can store your applications on the flash card, they will show up in the launcher, and tapping their icon will copy them to RAM, run them, and delete them from RAM when you exit.

You need two things to make this happen. One is getting the right files moved to the right place on the flash card. The other is a VFS enabled launcher.

Unfortunately, the launcher on the Visor knows nothing about VFS. Without some kind of 3rd-party help, there's no way it can see anything on the flash card (with or without VFS). However, the "launcher" on the Visor is really just another PalmOS application and that means it can be easily and safely replaced by a 3rd-party solution. There are a variety of 3rd-party replacement launchers that offer more functionality and better ease-of-use. Most of these have announce that they will have VFS support in an upcoming version. With VFS support, the launcher can "see" applications stored on the flash card, automatically copy them to RAM when they run, and automatically delete them from RAM when they exit. That means you could have 10MB of applications on your flash card, they would all show up in the launcher, but you only need enough free RAM on the Visor for the largest one.

10.4.1 LauncherIII

The first third-party launcher to support VFS was LauncherIII from Bozidar Benc. LauncherIII has been around a long time and is an excellent piece of software. To download LauncherIII or to get more information visit <http://www.benc.hr/lnciii.htm>. Note that you should have at least version 3.0.5 of LauncherIII if you wish to use it to launch application stored on the flash card.

The following explains (in quite a bit of detail) how to make LauncherIII work with VFS. If you need general instructions on the installation or use of LauncherIII, see the LauncherIII web-page and included documentation.

A Place for Everything ...

LauncherIII looks for applications in "/PALM/Launcher" on the flash card. This is the standard place defined by the VFS specification for launchers to

look. If you are trying to use a VFS enabled 3rd-party launcher other than LauncherIII, it will probably look in the same place. Use FAFileMover to create this directory on your flash card. That means go to the “root” directory and create a “PALM” subdirectory. Then go into the “PALM” subdirectory you just created and create a “Launcher” subdirectory. See the FAFileMover User’s Manual for detailed instructions on how to create and navigate subdirectories.

... And Everything in its Place

Now that you have a place to put them, you need to copy the files for the applications you want over to the flash card. This is where things get a little tricky, but if you follow these guidelines you’ll have no problems.

1. In FAFileMover, tap the RAM selector to show everything in your Visor’s internal memory.
2. Use the drop-down list in the bottom right corner to select “Type” for display in the info column.
3. Use the other drop-down list at the bottom to sort the list by “Info”.
4. Scroll the file list until you see files with the type “appl”. Only “appl” files should be copied to flash card.
5. Check the box for the application you want to run from flash.
6. Tap the “Copy” button.
7. When the copy is done, tap the “Del” button to delete the application from RAM. Don’t worry - as long as it copied to the flash card OK, you can always use FAFileMover to manually copy it back if the VFS thing doesn’t work out.

It’s important to remember that you want to delete the application from RAM using FAFileMover and *not* the delete function in the launcher. Deleting from the launcher will wipe out the databases and preferences that need to be left in RAM and that would be bad.

Start small with only one or two small applications until you get the hang of things and make sure everything is working properly. With one or more applications in the /PALM/Launcher directory on your flash card, go to LauncherIII. The applications on the flash card should magically appear as icons in the launcher. The names will have a “dot” by them to let you know that they are on a memory card. If you don’t see them, make sure that you have VFS enabled. If you still don’t see them, try the “refresh” menu item in LauncherIII.

10.4.2 SilverScreen

As of version 2.1, SilverScreen provides VFS support that works with VFShelper on all types of Visors. SilverScreen has the ability to move applications to the flash card itself without the need for FAFileMover. In order for this to work you must have created a “/PALM/Launcher” directory on the flash card as described in the instructions above for LauncherIII.

To move an application to the flash card, simply drag its icon to the folder tool in the tool-bar at the bottom of the screen. The category list that pops up will also contain options to copy or move the application to the flash card. A “dot” will be displayed in front of the application’s name for every application that SilverScreen finds on the flash card.

For more details on SilverScreen’s VFS support, see the readme.txt file in your SilverScreen directory. The notes about SD card support apply to VFShelper as well.

10.4.3 MegaLauncher

As of version 3.0.3, MegaLauncher provides VFS support that works with VFShelper on all types of Visors. MegaLauncher has the ability to move applications to the flash card itself without the need for FAFileMover. In order for this to work you must have created a “/PALM/Launcher” directory on the flash card as described in the instructions above for LauncherIII.

To move an application to the flash card, tap-hold on it’s icon. When the “Application Operations” screen pops up, tap the icon in the lower right with the side-by-side up and down arrows. You’ll get a dialog with options of Copy, Move, and Cancel. Tap “Move” and the application will be moved to the flash card. It’s icon in ML will now show a “dot” in front of the name to let you know that it’s on a memory card. To run the application, just tap its icon.

10.4.4 PowerRUN

PowerRUN is an alternative to using a VFS enabled launcher. PowerRUN is much like the FAAutoMover application that Kopsis proposed in the original “build your own FlashAdapter” article. PowerRUN now supports both OS 3.5 and OS 3.1 - however there are some known problems displaying icons under OS 3.1.

PowerRUN copies an application *and* its data files to the flash card, deletes them from RAM, and creates a “shortcut” icon in the launcher. When you tap that icon, it invokes PowerRUN. PowerRUN automatically copies the application and its data files back to RAM and then runs the application. When the application

exits, PowerRUN copies any changed data files back to the flash card and then deletes the application and its files from RAM.

This has two advantages. One is that it will work with any launcher (including the built in version) even if it's not VFS enabled. The other advantage is that it auto-moves data files as well as the application itself (LauncherIII only moves the application). To use PowerRUN, you will have to maintain enough free RAM for your largest application *and* its data files.

When PowerRUN is installed, it creates a PowerRUN icon in the launcher. When you run that application, it will bring up a list of all the applications installed in RAM, the amount of RAM you need to keep free to run that application from the flash card, and how long PowerRUN thinks it will take to launch them from the flash card. You can select an application and tap the "move" button and PowerRUN will move it to the card, delete it from RAM, and set up a "shortcut" in the launcher.

Important Notes for PowerRUN users

- PowerRUN "tags" the shortcuts it creates with the volume label of the flash card where the application is actually stored. Older versions of VF-SHelper (prior to Beta5) ignored the flash card's real volume name and always reported "CF_CARD". Newer versions report the actual volume label and that can cause existing PowerRUN shortcuts to quit working. There are two ways to fix the problem. One is to delete all your existing shortcuts and then let PowerRUN re-create them. The other is to use the "Set Volume Label" function in FAUtil (found under the "Tools" menu) to set the volume label of the flash card to "VFSBETA4" (without the quotes). Doing that will cause PowerRUN to see the same "CF_CARD" label that it saw with older versions of VF-SHelper and your existing shortcuts should continue to work.
- Applications that have their databases updated via HotSync (such as AvantGo) present an interesting problem for PowerRUN. Since the HotSync manager doesn't see the databases on the flash card, it will install the versions being HotSync'd to RAM. Then when you launch the application via PowerRUN and it copies the databases from the flash card, the new versions will be overwritten with the old versions. There is currently an "undocumented" feature in PowerRUN that allows one to work around this problem. To use it, run FAFileMover and locate the PowerRUN directory for the application in question (for example "/PALM/Programs/PowerRUN/AvantGo"). Use FAFileMover to create a directory within that directory called "DONTSAVE". The "DONTSAVE" trick will tell PowerRUN to check the versions of the databases in RAM and not copy from the flash card if the RAM versions are newer. When exiting the application, PowerRUN *will* move the RAM

databases to the flash card, updating the versions that were previously stored there.

10.4.5 MSMount

MSMount is another alternative to using a VFS enabled launcher. MSMount takes a different approach to providing access to applications and data stored on the flash card. MSMount “hooks” into all of the PalmOS functions that are used to manipulate databases in internal RAM. MSMount keeps track of all the databases stored in a certain directory of the flash card and reports them as being in RAM to the PalmOS. When the OS tries to read a record or a resource out of one of those databases, MSMount intercepts that request, copies the record or resource from the flash card to a buffer in RAM, and then gives that buffer to the OS function that requested the data.

By “tricking” the PalmOS into thinking that databases on the flash card are actually in RAM, MSMount gives you the ability to launch applications using any launcher without the need to create PowerRUN style shortcuts. The other advantage of MSMount is that because it reads records and resources into RAM only as needed, you may be able to run flash card resident applications with less free RAM than is possible with other techniques.

The down side of using MSMount is that moving applications into RAM piecemeal carries a lot of overhead and may, in many cases, be slower than just copying the entire application to RAM in one operation the way PowerRUN or VFS enabled launchers do.

MSMount will also allow some non-VFS-enabled applications to access their databases directly from the flash card. That capability is discussed in section 10.5.1.

10.5 Data on Flash Card

VFS enabled applications can read and write their data to the flash card. How the user makes them do this depends entirely on the application. PalmOS applications can be divided into two categories: those that have built-in support for VFS and those that don’t.

10.5.1 Applications Without VFS Support

Most applications developed prior to the release of PalmOS 4.0 in mid-2001 are unlikely to have VFS support unless it has been incorporated into a recent update. Supporting these “legacy” applications presents a significant challenge. Since the applications don’t even know that the flash card exists, something

must be done to make sure that the application's data is in internal RAM at the time the application is run. The following sections describe four different techniques for making this happen.

Leave Data in RAM Always

In many cases, applications that have not been updated to include VFS support do not have relatively small databases. When an application's data needs are small, it often makes the most sense to just leave the application's data in internal RAM at all times. The application itself can be launched from the flash card using any of the techniques previously described and when it runs, it will find it's data exactly where it expects it.

Move Data Manually

In some cases, it makes sense to manage an application's databases manually using a file manager such as FAFileMover. In cases where an application can create multiple databases of the same type (such as a document editor or general purpose database application) it is often a simple matter to keep the collection of those databases on the flash card and then manually copy to RAM as you need them. Most applications that lend themselves to this approach are quickly being updated with VFS support, but there are still some cases where this can be extremely useful.

PowerRUN

With PowerRUN (and similar utilities) this task becomes trivial. When you move an application to the flash card with PowerRUN, it moves not only the application, but also any databases that are directly associated with it. When the application is launched via its shortcut, PowerRUN copies both the application and its data to RAM before running the application. When the application exits, PowerRUN checks the databases for changes and copies any it finds back to the flash card. The down side to this technique is that if the data is very large, copying everything to RAM in its entirety can be slow and may require a significant amount of free RAM.

MSMount

Just as MSMount can "trick" the PalmOS into seeing applications on the flash card, it can also trick applications into seeing their data. An application's database when stored in MSMount's directory on the flash card will be visible to the application just as if the database was in internal RAM. When the application requests a record or resource from the database, MSMount intercepts

the request, reads the requested data item from the flash card into RAM, and returns the data to the application.

In many cases, applications access only a few of the many records or resources in a database, so this technique can be very efficient both in terms of speed and RAM usage. In some cases, it allows access to databases that are larger than the amount of free RAM. The disadvantage to using MSMount for data access is that it does not have the ability to handle any changes to the database. Databases managed by MSMount are considered read-only and this can be a problem for some applications. Another issue is that some applications try to create new databases in the location from which the application was launched. Since MSMount causes applications to be launched from what appears to the PalmOS to be “read-only” storage, attempts to create databases in the same location will fail. MSMount developers and users maintain lists of applications that are known to have problems with MSMount. If you encounter problems, you should check those lists to see if there are any known issues with the application you are trying to use.

10.5.2 VFS Enabled Applications

Many newer applications have built-in support for VFS and many existing applications are being upgraded to add VFS support. If you have an application that you know supports VFS, the first thing to do is check the application’s documentation to see how that functionality is supposed to work. If that doesn’t help, you probably need to contact the tech support people for the company that makes the application. Kopsis has only tested a handful of VFS applications. We don’t have the resources to try every VFS application and figure out what setup you need to do. If you ask us for advice, we’ll probably just repeat that last sentence [grin].

In most cases, simply moving the application’s databases to the “/PALM/Launcher” directory is sufficient. Really well written applications will also check for their databases in the directory “/PALM/Programs/AppName” (where AppName is the name of the application). Check the application’s documentation to see what is supported.

The following sections list some of the most frequently asked about applications as well as some we have tested have special requirements or things you should be aware of. Keep in mind that applications are constantly being updated and improved, so the following may be out of date. Always check the documentation for the application you’re trying to use for the latest information on their VFS support.

10.5.3 JPGview

JPGview by Claus Fenske is an application that will allow you to view JPEG files directly from the flash card. Unfortunately, it only supports Visors with OS 3.5 or higher. You can download JPGview from <http://www.claus-fenske.de/palm/>.

10.5.4 VFMail

VFMail from Ninelocks will allow you to email files stored on your flash card. It works best if you connect to a modem via IR or the HotSync port, but it can also create the emails in RAM so you can then plug in a Springboard modem and transmit them. You can download VFMail from <http://www.ninelocks.com/vfmail/>.

10.5.5 FileMan, McFile, FileZ, GentleMan

These applications are all VFS file managers. They do the same job as FAFileMover, but support additional features and alternative user interfaces. If FAFileMover is missing a feature that is important to you, you may want to investigate one of these alternatives. Of these, only FileZ supports OS 3.1.

10.5.6 Handheldmed Reader

Note that if you have VFS enabled, you must have a “/PALM/Launcher” directory on your flash card even if you have not yet copied any files into it. Without that directory, Handheldmed Reader will cause a Fatal Error when it is run.

With Taber’s Dictionary on the flash card (or other very large books), there is a *very* long pause with a completely blank screen when you launch the Reader application. Handheldmed is aware of it and we’re working together to try to improve it. Please don’t email Handheldmed and complain - they’re already working on it.

10.5.7 TealMovie

TealMovie (and the other TealPoint applications) has its own built in file manager that lets you browse the memory card and select the movie that you want to view. It also has functions to move files between RAM and the flash card.

Movies can be played off the flash card but due to performance limitations on older Visor models, the playback quality of the audio and video may not be acceptable on some systems.

10.5.8 Olive Tree Bible Reader

Olive Tree's reader can be configured via its preferences to look in several different locations for your files. The default is /PALM/Launcher (the same place you put your applications). Check the preferences screen and decide what works for you.

Olive Tree recommends that you use the PPC versions of the bible files since they consolidate several databases into a single larger database.

Note that some bible files fail to show up when stored on the flash card. This is a problem with the Reader software itself and not VFS. Olive Tree is looking into the problem.

10.5.9 Mapopolis 3.0

Mapopolis can use maps stored on the flash card, however it copies the whole map to RAM in order to access it, so you will need to keep an amount of free RAM greater than the largest map you wish to use.

Maps should be copied to the flash card using Mapopolis itself and *not* FAFileMover. Mapopolis expects the map files to have special names that FAFileMover does not know how to generate.

10.5.10 Other Applications

The applications mentioned above are just a few of those available with VFS support. In most cases, the application should include documentation that tells you how to use it with VFS. In some cases, the application won't mention VFS by name but will instead talk about SD/MMC card or MemoryStick support. The notes pertaining to those storage devices also apply to using the application with VFSHelper.

Chapter 11

FAMemManager

FAMemManager is available only on FlashAdapter modules that have on-board flash memory. /emphNote: only FlashAdapter modules that are “plug-and-play” capable have on-board flash memory. On these modules a portion of the on-board flash is reserved for the FlashAdapter software, but there is usually a significant portion of the on-board flash that is available for storing applications and read-only databases. Applications and read-only databases stored on the module are directly “visable” to your Visor and can run directly from the module’s on-board flash.

This allows you to “customize” your FlashAdapter module with any software you choose. For example, you may want to load a JPEG viewer application into the on-board flash so that it will be available with any flash card, but will not take up any space in your Visor’s RAM.

Note: throughout this chapter, the term “flash” means the memory that is built-in to your FlashAdapter module. This should not be confused with the flash memory on flash cards that you use with the module. FAMemManager cannot in any way access the flash card. To move applications and data to or from the flash card, you must use FAFileMover (or a third-party VFS enabled file manager).

11.1 Moving an Application to the Module Flash

Fig. 11.1 shows the main screen that you will see when you run FAMemManager. The controls are designed to be simple and easy to understand. This application is based on Handspring’s File Mover application for their 8MB flash module. If you need information on using FAMemManager beyond what is provided in

this manual, please consult Handspring’s documentation for their File Mover application.

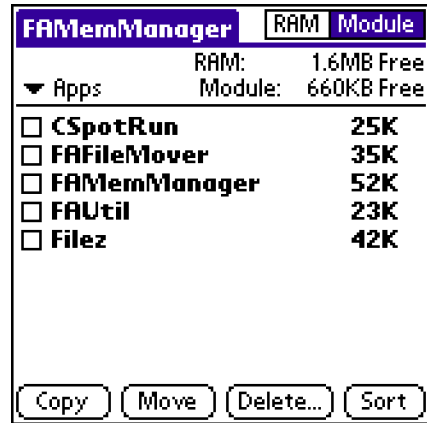


Figure 11.1: FAMemManager Main Screen

The procedure for moving an application from the Visor’s internal RAM to the on-board flash on your FlashAdapter module is as follows:

1. Tap the “RAM” side of the RAM | Module selector.
2. Make sure the view mode selector in the upper left of the screen is set to “Apps”.
3. Locate the application you want to move in the list of applications and check the box next to its name.
4. Tap the “Move” button to move the application. Note: using the “Copy” button instead of the “Move” button will copy the application to the modules on-board flash without deleting it from your Visor’s internal RAM. This can be useful for keeping backups of certain applications so they can easily be restored if the need should arise.

11.2 Moving an Application from the Module to RAM

The procedure for moving an application from the module’s on-board flash to the Visor’s internal RAM is as follows:

1. Tap the “Module” side of the RAM | Module selector.
2. Make sure the view mode selector in the upper left of the screen is set to “Apps”.

3. Locate the application you want to move in the list of applications and check the box next to its name.
4. Tap the “Move” button to move the application. Note: using the “Copy” button instead of the “Move” button will copy the application to your Visor’s internal RAM without deleting it from the module. This can be useful for restoring backups of applications that you keep on the module.

11.3 Advanced

The view mode selector in the upper left of the screen can be used to control exactly which databases are displayed. In addition to the applications, some read-only databases can be copied to and accessed from the module’s on-board flash. Selecting “All” instead of “Apps” will show all the databases grouped by their associated application.

Moving these databases is done following a procedure similar to that described for moving applications. This should only be done by advanced users who have knowledge of how these databases are used by their corresponding applications.

11.4 Problems

If you have problems running an application from the module’s onboard flash or if you have questions regarding which of an application’s databases can be safely moved to flash *do not contact Kopsis technical support*. Kopsis is not likely to have any significant knowledge of the application in question. Direct such questions directly to the company that makes the application.

Chapter 12

Technical Support

While this User's Manual attempts to provide all the information that you will need to install and use your FlashAdapter software, it is always possible that a problem will arise that is not covered by this documentation.

If you think you may have a hardware problem, do not contact Kopsis. Contact the maker of your CompactFlash adapter Springboard module for all hardware support issues.

If you have a technical problem using the FlashAdapter software (or the included utilities) follow the directions in Chapter 7 for troubleshooting the problem. Many problems are the result of incorrectly installed FlashAdapter software so be sure to review the instructions in Chapter 5 very carefully. You may also want to review the FlashAdapter Software Frequently Asked Questions list at http://kopsisengineering.com/fa_software_faq.html.

If all of those steps fail to resolve the problem, send a detailed email to support@kopsisengineering.com. Please include the following information in your email:

- Type of Visor.
- Type of FlashAdapter Springboard module.
- Type and size of flash card.
- Version number of your FlashAdapter software (available from the “Versions” button in FAUtil).
- A description of the problem and the things you did to try to resolve it.
- An email address where we can contact you should we require more information.

Please be as detailed as possible in your description of the problem. The more information you provide, the better our chances of being able to resolve the problem quickly.

Note that technical support requests from registered users will be given priority over those from unregistered users.

Kopsis, Inc. also maintains an active FlashAdapter discussion forum for end users of FlashAdapter software products. This is the best place to go to find answers to software usage and technical questions. Archives of all discussion posts can be searched to find answers to frequently asked questions. In addition, new questions posted to the forum usually receive responses from experienced users and/or Kopsis, Inc. engineers – sometimes within minutes of being posted. The forum is available as an email mailing list (individual messages or daily digests) as well as via a Web interface. To subscribe to the FlashAdapter forum, go to <http://groups.yahoo.com/group/flashadapter-forum/join>.