Dataman Vali-Flash 4

www.dataman.com

Vali-FLASH

User Manual

Dataman

Introduction

Thank you for purchasing Dataman Vali-Flash for your CompactFlash® validation needs. Dataman Vali-Flash is a PC based validator designed for calculating the CRC-32[1] and SHA-1[2] signatures for CompactFlash® memory cards. Vali-Flash offers many exciting and advanced features including:

- Support for complete range of CompactFlash® devices both Type I and Type II with the supplied card reader
- Signature compatibility with all Dataman Validator products
- Full database features including search and edit of all records
- Encrypted database and visual CRC32 checksum to thwart tampering
- Protected Program File (.exe) to prevent tampering
- Supports Microsoft Windows® 2000 and XP
- Full logging to aid in auditing
- On-the-fly support for resizing/padding images to fit larger CompactFlash® cards while burning new images
- Better license management featuring online registration
- Use Vali-Flash without administrative privileges. This option is selected during installation
- New user-friendly design that incorporates context sensitive help and tool-tips (bubble hints)
- Fully supported fast USB 2.0 CompactFlash® card reader

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[1] The Dataman CRC-32 algorithm is proprietary to Dataman. This is not the same as the CCITT CRC32 algorithm.

[2] The SHA-1 hash algorithm refers to a published standard, please see the Federal Information Processing Standards Publication 180-1: Secure Hash Standard.

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Quick Start Guide

This quick start guide is designed to get Dataman Vali-Flash installed and operational on your computer as soon as possible.

Overview

The process will include two steps: Installation and Activation.

Installation – New Install

You can install Vali-Flash from the provided CD-ROM or from our website at www.dataman.com.

1. Run `setup.exe` from either location.
2. Review License Agreement
3. Enter Customer Details
4. Select the desired option for having a read-only or read-write database. The default option is a read-write database that allows new games to be added or existing games to be modified or deleted. A read-only database does not allow any modifications to the database.
    a. A red "✕" for the Make Database Modifiable item indicates a read-only database.
    b. Whereas a "" indicates a read-write database.
5. Select Install, and once that operation is complete you may click Finish.

Installation – Upgrade

In order to perform an upgrade, you will want to consider two issues: the existing database and migrating the license to Vali-Flash 4.1.

- To backup the existing database:
    1. Start your previous version of Vali-Flash.
    2. Select the menu option Database→Backup
    3. Enter the filename and save the file. Please note the directory path location.
    4. Close Vali-Flash.
    5. Uninstall the existing version of Vali-Flash.
    6. Return to this section after you convert the license.
    7. Once Vali-Flash 4.1 is installed, you can select the menu option Database→Restore and enter the appropriate location that you saved previously in step 3.
    8. You may confirm that your database was properly restored, by selecting the menu option Database→Search/Edit.
- Converting the License

    The next issue to consider is upgrading the license. The license from previous versions of Vali-Flash is incompatible with version 4.1. You will have to contact Dataman in order to upgrade your license as the migration process differs on each version of Vali-Flash. Please have the following information ready:
    - Dataman Invoice # (or your Purchase Order #)
        - The invoice # for the original purchase and/or the invoice for the upgrade.
    - Your **site**, and **mid** codes from your existing version
        - You will have to obtain a remove code during the conversion process
    - Your **init** or **activation code**

Registration

Once you have received your serial number you may use the online registration feature in order to quickly register your software. Registration is required in order to activate your software.

Your software will run as a demo at first and will need to be converted to the full version. In order to do this, please select Help→License Manager from within Vali-Flash. This will display the number of remaining runs for this demo, please see Figure 1.

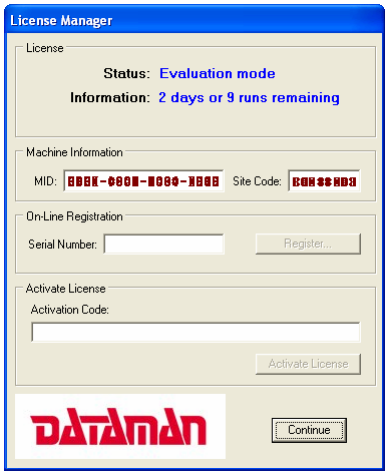

Figure 1 - License Manager - Evaluation mode

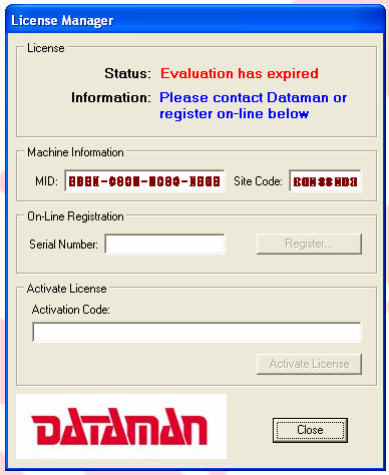

Figure 2 - License Manager - Evaluation has expired

If your license has already expired then you will receive a dialog similar to Figure 2.

In either case, you can register on the same computer Vali-Flash is installed on **or** you can use any PC as long as you write down the MID and Site codes.

If you want to register on the same computer (i.e. you have Internet access) then simply enter your serial number into the License Manager dialog as shown in Figure 3:

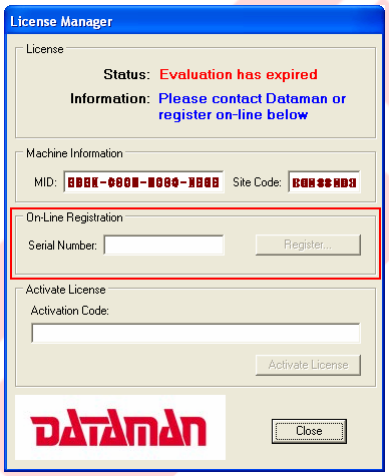

Figure 3 - License Manager - Online Registration

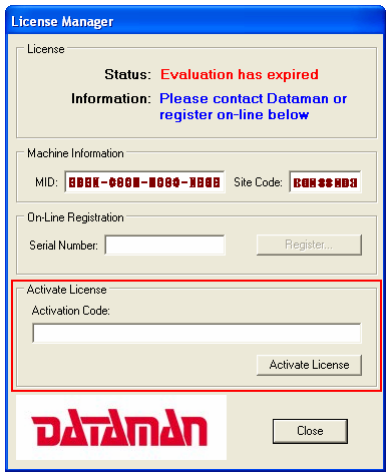

Figure 4 - License Manager - Enter Activation Code

Otherwise, please visit: http://www.dataman.com/Registration/ValiFlash.aspx and create a user account. Once you have created a user account you may then enter the license by clicking on Add License. Then follow the instructions as specified during the registration process.

If you do not have Internet access at all, please contact Dataman. Please see page 20 for contact details.

Please Note	Please be sure to record all of your registration codes in a secure location to ensure software registration and licensing. When you register online, all of the information will be generated on the registration page. It is highly recommended that you print out this page so that all of this information is available. The end user is responsible for retaining these codes at all times. Loss of these codes will require a new Vali-Flash software purchase.

Once you have registered you will receive your activation code, which will activate the software. This code must be entered into Vali-Flash in order to activate the software as shown in Figure 4.

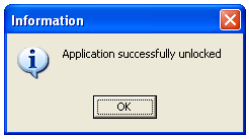

Figure 5 - License Manager - Application Unlocked

After you have activated your software, you will receive a dialog as shown in Figure 5. This indicates that Vali-Flash was successfully registered.

For additional information about registration please refer to the next section.

Registration – Supplemental Information

This section is optional to read and provides a more in-depth look at how the registration process works.

Let's start with defining the terms used in the entire registration process.

Site Code:
This is an 8-digit hexadecimal number that uniquely identifies a new install of Vali-Flash. When the license is removed or transferred this site code will change. If hardware on your computer changes then this will also change along with the MID code.

MID Code:
This is the Machine ID code. This number is used to uniquely identify the system that Vali-Flash is installed on. The format is 16 hex-digits xxxx-xxxx-xxxx-xxxx with the included dashes. This code also changes every time the site code changes. Both the Site and MID codes together identify your computer.

Activation Code:
This is a 32-character code used to initialize or unlock the application. The application will become licensed after the correct code in entered. The format is: xxxxxxxx-xxxxxxxx-xxxxxxxx-xxxxxxxx and dashes are required. This was called an Init code in the previous versions of Vali-Flash.

Serial Number:
This number uniquely identifies a particular copy of Vali-Flash. This 12-character code is required for online registration. It is included with your physical package of Vali-Flash.

Remove/Removal code:
This code is issued when the Vali-Flash license is removed. The format is (xxxxxxxx) or an 8-characture hex digit. This code is used for license transfers or for a credit of one license. Always make sure to record this number.

License Transfer:
If you wish to install Vali-Flash on a different computer you will need to perform what is called a license transfer, which will disable the current license and enable the license on a different computer. This operation actually requires a removal on the old system and an activation on the new system.

License Re-Issue:
If you change the hardware on your system, both your site and mid codes will change. This is a normal operation and simply requires a License Update. If you sign on to the online registration you will be able to enter your details and obtain a new activation code. In rare circumstances, you may have to contact Dataman for out of the ordinary hardware changes.

A file called `License.TXT` will be created in the same directory where Vali-Flash is installed to keep the site, mid, and activation codes for future use. You may refer to this file if you do not have your current codes.

License Transfer

If at some point you want to use Vali-Flash on a different computer you will need to perform a license transfer.

Start the Vali-Flash application and select Help→License Manager. You will be presented with the following dialog.

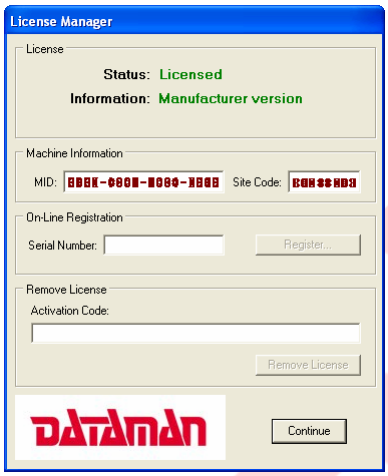

Figure 6 - License Manager - Licensed

In order to process a license transfer you must remove the active license and request a new code. Once you remove the license you will be given a remove code. This remove code will be used to generate a new activation code on another computer with the online registration. Enter your activation code and click on the remove license button. If you are unable to locate your activation code please take a look at the file `license.TXT` which will have the code recorded.

Once you have confirmed that you want to remove the license, Vali-Flash will issue a remove code as shown.

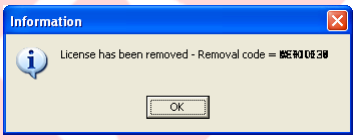

Figure 7 - License Manager - Remove Code

Always make sure to record this number in a safe location. This code is also saved to file `License.TXT`.

The license removal process will not delete or un-install Vali-Flash. It will just make Vali-Flash expire and it will generate a different site code. This new site code will require a new activation code in order to unlock or activate Vali-Flash. If you want to completely remove Vali-Flash you will have to go to Add/Remove programs and remove it from there.

Once you have your remove code you will then want to install Vali-Flash on the new computer. Once you have completed this, you will need your *removal code* from the old computer, your *serial number*, and your *new site* and *new mid* code from the new computer.

Then, please visit: http://www.dataman.com/Registration/ValiFlash.aspx and click License Transfer. The online registration instructions should be self-explanatory. If you have any additional questions or concerns please contact Dataman. Dataman contact details are on page 20.

License Removal

The procedure is exactly the same as a license transfer, except you would not re-register the software and obtain a new license. Please see the above section for more information.

Other questions or concerns should be directed to the Dataman Support Team. Please see page 20 for contact details.

Miscellaneous Information

The following sections cover the differences in versions, certified card readers and auditing information.

Vali-Flash Version Differences

There are two options for Vali-Flash depending on your needs: the E or (End user) and the M (Manufacturers) version.

The E version enables you to perform Validation only. The Save and Burn buttons are not present.

The M version enables you to not only Validate but also provides you with the ability to Save and Burn the raw image to the CompactFlash® card.

All other options are identical in both versions. Please see the two screenshots below for a visual indication of the differences.

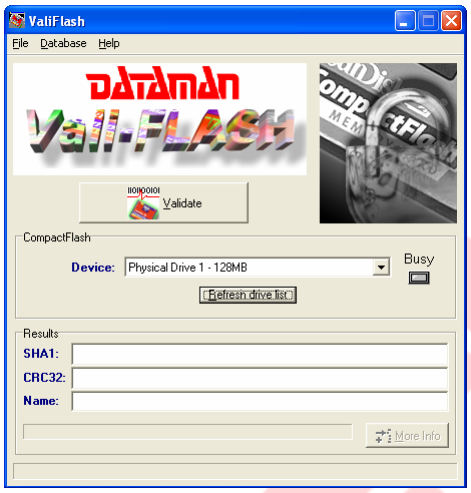

Figure 8 - "E" version of software

Dataman Vali-Flash 4.1 E Version
Validate only capability

Figure 9 - "M" version of software

Dataman Vali-Flash 4.1 M Version
Validate, Save, and Burn capabilities

These versions differences exist to give our customers a more cost effective method for validation only versus having the ability to save and burn cards.

The databases to both versions are compatible.

Certified CompactFlash® Card Readers

Our goal is for maximum interoperability with all CompactFlash® card readers; however, some card readers, their device drivers, and associated firmware do not interface well with Vali-Flash. Vali-Flash accesses the device at the lowest level possible from user mode and reads the data as an array of contiguous bytes without regard to files and/or directory structure. This gives you, our customer, the ability to use any file system without concern for file system support. Specifically, our testing has shown the following symptoms from various off-the-shelf card readers with our software.

- Missing EOF (End of File) at the end of the physical device
- Does not correctly detect a newly inserted card on all supported platforms
- Returns spurious data at end of the card
- Does not allow access to the last 2 kilobytes of data on the card.

Dataman will continuously evaluate card readers and test them for compatibility.

Manufacturer	ID	Certified
SanDisk ImageMate® CompactFlash® USB 2.0	P/N: SDDR-91	✓

At the time this manual was written, the only compatible card reader for support on all supported platforms is the CompactFlash® card reader listed above. This reader is included with the Dataman Vali-Flash package. Please visit our website for more up-to-date information on certified card readers.

Logging Information

The file `ValiFlash.log` is generated for logging / auditing purposes. Each line contains the date, time and detailed information about a particular operation. This file is located under `Documents and Settings\All Users\Application Data\DATAMAN\ValiFlash` by default.

The following events are recorded in the log file with additional details.

- ValiFlash started
  - The Vali-Flash application was started.
- ValiFlash shut down
  - The Vali-Flash application was shutdown.
- Database Search/Edit
  - The user went into the Database Search/Edit dialog.
- Begin validation
  - The user started the validation process.
- CompactFlash found
  - The CompactFlash® device was found either by entering the application or selecting Refresh drive list
- Drive 2 - …
  - Drive 2 was found with the specified size.
- Seeking SHA1 ...
  - The calculated SHA1 and Dataman CRC32 codes.
- Match found: …
  - A match was found for this card and the name will be specified.
- No match found
  - No match was found for this card.
- Begin save
  - The CompactFlash® card saved to a file.
- Begin burn
  - The burn process was started on a CompactFlash® card.

Software Operation

Vali-Flash is designed to be user friendly. All card operations including validation, saving and burning images, are available on the main dialog. To start, just insert the card into the card reader and select "Refresh drive list". This action refreshes the list of available devices to Vali-Flash. Once you have selected the appropriate device from the drive list you may then click the desired button. Please see the sections below for additional information.

Note	As with any piece of hardware, please make sure you follow the proper Windows® operating system procedures for ejecting hardware when disconnecting the CompactFlash® card reader. Failure to eject or stop the card reader prior to removing it may cause Vali-Flash to hang or incorrectly read the CompactFlash® card. This is only applicable to removing the card reader and not the actual CompactFlash® card unless you are using a PCMCIA card reader in which case the card reader is physically removed from the system.

Figure 10 - Validate Button

Validate: To validate a CompactFlash® device, click the Validate button and wait for the device to be read. Once the device has been read and the signatures have been calculated, the results will be displayed.

Please Note	Please make sure you never remove the CompactFlash® media from the reader while the BUSY LED is lit. Doing so may damage the reader and/or the media. If you must abort an operation you may close Vali-Flash by hitting the [X] in the upper right corner. Each time you insert a new CompactFlash® device into a reader, please click on the "Refresh drive list" button and make sure that the new CompactFlash® card has been selected.

Vali-Flash is designed with a database that records game information and signatures. Once a signature is calculated, they are then compared against the database for a match. If no match is found, you will then be prompted to add this new signature to the database. Please note, that this only applies if you have *not* selected the read-only database option during installation. If the read-only database option was specified, Vali-Flash will only indicate that the signature was not found in the database.

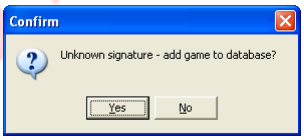

Figure 11 - Add Game To Database

If you select No, the signature and game details will not be recorded in the database. However, if you select, Yes, you will be prompted to enter a game name.

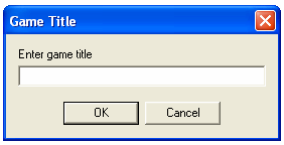

Figure 12 - Enter Game Title

It is suggested that you include the name of the game and any other version or identification numbers that you wish to uniquely identify this game. This is the name that will be pulled up when this game is validated in the future. This

also indicates that the game signatures are exactly the same when the game was originally added to the database. If a game is validated, and the entry is in the database, but the name is not pulled up then the signatures do not match.

Note	There are only two conditions that will prompt you to enter a new game: Either the game in CompactFlash® being validated does not exist in the database, or the data in the CompactFlash® being tested does not match the data of the game in the database (hence a different signature). If you receive this message and you believe the game already exist in the database, you should search the database for the game to confirm that it does not exist. If the game exists, but the signatures are different you should take all precautionary measures to verify the data integrity of the game.

Once you have entered a game name you will then have the option to enter additional game details.

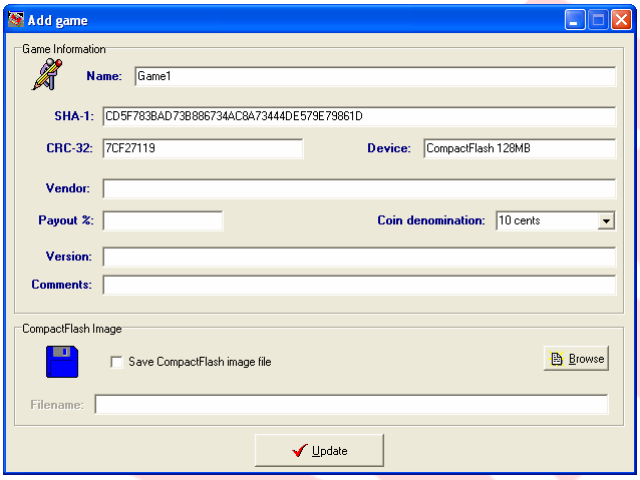

Figure 13 - Add Game Details

You may enter the appropriate game details, if desired. Additionally, you may save an image of the CompactFlash® card by clicking the Save CompactFlash® image file checkbox and entering the filename and path (or Browse). Once you have finished entering all of the details, click Update to save.

Figure 14 - Save Button

Save: To read a CompactFlash® card and save the image to your PC, click the Save button. You will then be prompted to enter a filename and path for your image file. Once these details are entered, Vali-Flash will read the entire CompactFlash® device and will save a copy of the raw image to the file specified. Please note, that this function is only available on the "M" version of the software.

Figure 15 - Burn Button

Burn: To program or burn a CompactFlash® card from a saved image, insert a CompactFlash® card into the card reader and click the Burn button. You will then be prompted to enter the filename and path of your saved image file. Once this has been entered, Vali-Flash will read the specified image file and then burn the data into the CompactFlash® card. Please note, that this function is only available on the "M" version of the software.

Please make sure that you burn CompactFlash® cards that are equal to or larger then the image file. If a CompactFlash® card is larger then the image then you will see the following message box.

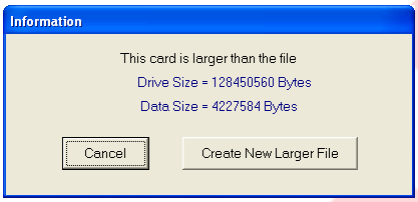

Figure 16 - Create Resized Image

If you wish to continue the burn operation, click, Create Resized Image. This will generate a new image file while padding it to the full size of the CompactFlash® card in the card reader.

You will be prompted to enter the location of the new image file, by default the name includes [Resized] in the image name. Save this image.

Once the new resized image file is created, Vali-Flash will switch into validation mode to allow you to enter new game details. The procedure is exactly the same as if you were validating this game for the first time.

Please note that creating resized images is a completely safe operation and enables you to use larger CompactFlash® cards should the need arise. The reason the signatures are different is due to a larger image size and that blank data is padded at the end to fill the entire card with empty (or null) data.

It is suggested that the new game name resemble the existing game name with the note indicating that this is a resized image.

When validating this card or the original card, Vali-Flash will pull up the appropriate game name, either the original or the resized game name.

Please note, that due to potential for truncated data, there is no option to burn an image file that is larger than the card. Such an attempt causes the error: Image file is larger than card size.

Database Operation

Search and Edit Database

To use the search and edit features of Vali-Flash, click on Database, then Search / Edit from the main menu. You will see the following dialog box:

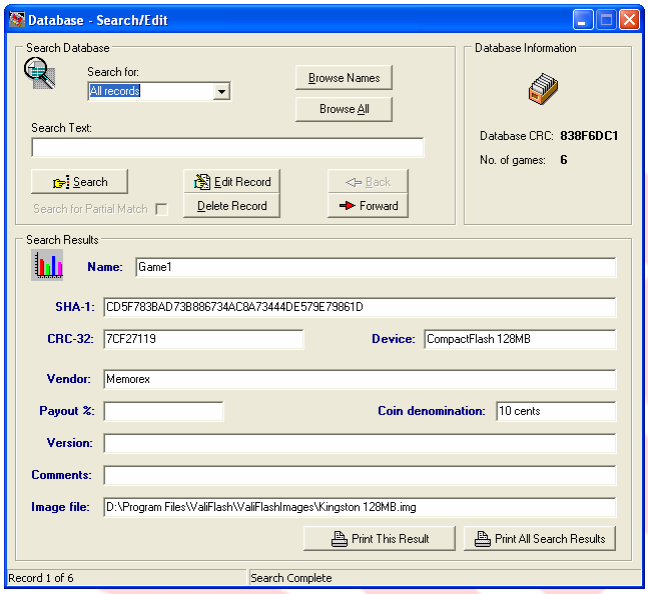

Figure 17 - Database Search/Edit

There are three ways to find a desired game in the database:

1. Sequentially search all records in the database using the Forward or Back button.

2. Click on Browse NAMES to list all the Game "NAMES" in the database.

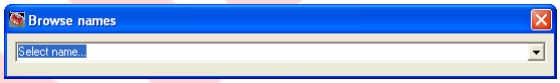

Figure 18 - Database Browse Names

3. Enter a value in the Search Text field, then select the field you wish to search by selecting it from the Search Field drop down menu.

In all cases clicking the Search button will display all matching records. The matching records count is displayed below the search button. If a matching game is found then the Edit and Delete buttons will become visible. Please note, that if you have selected a read-only database during installation, editing and deleting games is not enabled.

Use the Delete button to delete the current game, pressing this button will cause you to confirm that the game is to be deleted.

NOTE: Once the game has been deleted there is no way of retrieving it.

If there is more than one record which meets the search criteria then the Forward and Back buttons become enabled.

The Search field lets the user choose which field of the database to search. The default search criterion is All records. This enables you to look at each record in the database by clicking the Forward or Back button. You can also display a list of all the names by clicking the Browse NAMES button; this will open a drop down listing of all game titles.

Once a game has been found in the database it is possible to edit the details. To find a game, simply use the search function and then click the Edit Record button. This will display the following screen:

Edit Dialog

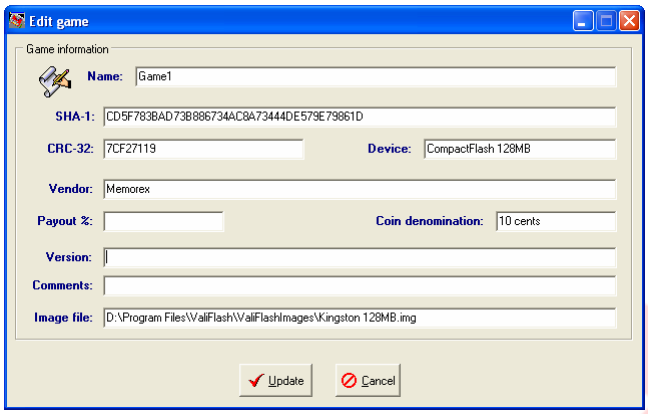

Figure 19 - Database Edit Game Dialog

All fields that have a white background can be edited, once all changes have been made click the Update button and the Database will be updated with the changes.

Database Information

Located on the right hand side of the Search / Edit screen is the database information panel. This panel looks like the following:

Figure 20 - Database Information Dialog

Database information shows the total number of games held in the database and the calculated CRC-32 checksum for the database file. The database itself is encrypted and any attempts at modifying it outside the Vali-Flash software will render the file useless. The CRC32 checksum is calculated from the main database file and any changes to this file will change this checksum. This can be used to ensure that a known trusted database is being used.

Database Backup/Restore operations

Once you have recorded all of your games into the database, it is highly recommended that you keep a backup of your database. In the unlikely event that you lose your data you can always restore it from a backup location. How frequently you backup your database depends on how often you add new games. The database file is fairly small and can be backed up on a floppy disk, CD-R/CD-RW, or to a network location.

Backup

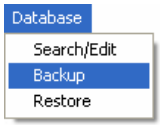

Figure 21 - Database Backup

To backup the database file, select Database→Backup. You will then be prompted to enter a file name. Once you save the database, a snapshot is taken and saved into that file.

Restore

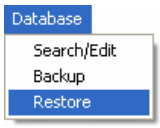

Figure 22 - Database Restore

To restore a database from a file, select Database→Restore. You will then be prompted to enter an existing filename. Once you have selected the file, Vali-Flash will overwrite the existing database with the selected database.

Frequently Asked Questions

Q: Do you need to have the CD inserted after Vali-Flash is installed in order to register (or unlock) the application?

A: No, the CD is only required to install the software application. Once the application is installed, the CD is not required, unless of course you wish to reinstall. It is recommend that you keep the CD for future use. You may also download the software from our website and install from there. The CD is not even required if you download the full version from our website.

Q: I purchased multiple copies of Vali-Flash, do I need to install one CD per computer and keep that CD bound to that computer?

A: All CDs and even the download section are exactly the same. When you purchase multiple copies of Vali-Flash, you will receive identical CDs. Even if you have E and M versions, the Vali-Flash 4.1 CDs will be identical. The E/M licensing is done in software during the registration. If you have previous versions of Vali-Flash, (e.g. 2.0/3.0) those CDs are different from version 4.1

Q: Will Vali-Flash read a non-Windows® (e.g. UFS, ext2/ext3, ReiserFS, HPFS) or Windows® (NTFS, FAT) formatted CompactFlash™?

A: Yes, Vali-Flash does not care about the file system. It just reads from the start of the CompactFlash® to the very end. The signature is computed on the "raw" data from the CompactFlash®. Any changes made to the CompactFlash® card will result in a new signature. This includes changes made to any file or directory ("content") as well as file attributes such as the MAC (Modified, Access, and Creation times), file system level access control lists and any other file or directory related ("meta-data"). Defragging your disk, changing or even looking at files (access time) will completely change the signature. If you are concerned about accidentally changing data while you are validating. Consider the product Vali-Flash 4MR or Vali-Flash 4ER. Both of these products include a special reader to prevent writes at the hardware level. The 4MR and 4ER are priced the same as the 4M and 4E versions. These products just have a different reader. They also include a read/write reader so you can write to the cards, if you need to. We introduced these additional products for customers who run file systems that can be read by the operation system. It can be extremely difficult to prevent writes from the operation system during general use (e.g. if the file desktop.ini exists it will automatically be read, if you reboot it can do a disk check, etc.). If the file system is not recognized by the operating system then this problem doesn't really exist.

Q: How can I transfer a license if I have removed Vali-Flash?

A: Just install Vali-Flash. Once this is done the license screen will be displayed with the existing license information. You can then transfer the license to a new computer. License information will persist even after Vali-Flash is removed from add/remove programs. Once Vali-Flash is transferred you can then remove Vali-Flash from add/remove programs to free up disk space. Keep in mind, that after a transfer, the license is removed from that PC. Any time the license is removed, a new site code will be generated. If you need another copy please contact Dataman about purchasing an additional copy. Additional registration information can be found in the online help manual.

Q: I receive the error message, "Corrupt, tampered, or missing files" followed by "Re-install software or contact Dataman."
OR
I received an error message about a corrupt table or index header. What does this mean?

A: This indicates that the database file `valisig.dbf` is missing or corrupted. This file by default is located under `Documents and Settings\All Users\Application Data\DATAMAN\ValiFlash`. This file will have to be restored in order to run Vali-Flash. You may either restore from your latest backup or you may reinstall Vali-Flash, which will install a blank database or copy over the database from the previously installed version of Vali-Flash, if available. You may also download a blank database from our website, if desired. The database file is fully self-contained and does not need any additional information outside of the file to be restored. Please make sure when you attempt to copy a database file manually that Vali-Flash is closed so that the database file is also closed. You do not have to close Vali-Flash for backup/restore operations within Vali-Flash. Please see the manual for additional information about backup or restore operations.

Q: I get the error "Card reader cannot determine exact size of card"?

A: This indicates that Vali-Flash was unable to determine the exact disk geometry from the partition information off of the CompactFlash® card. Please make sure that you are using a certified card reader as specified in the manual or website. You may want to try another card to see if there is a problem with the card reader or card. If you have Vali-Flash 4.0 instead of Vali-Flash 4.1 then there is a known problem with Vali-Flash 4.0. Please upgrade to the latest version. You can contact us and request a CD or you can download it from our website. Additionally, you may contact Dataman for technical support.

Q: Do I need administrative permissions?

A: One of the new features of Vali-Flash 4.1 is that you may run Vali-Flash with the `CFAccessService` service. What this means is that you will be able to run Vali-Flash without administrative permissions during validation, burning or saving CompactFlash® cards. Please note that administrative permissions are required when installing either new hardware or when installing Vali-Flash. This option is automatically installed. If you want to use administrative permissions without using the service you may disable the service. If you have administrative permissions, Vali-Flash will directly access the card reader.

Q: Is Vali-Flash supported under Windows NT®?

A: No. The Windows NT® operating system does not have USB support. Please see the Microsoft® Knowledge base article Q196661 regarding the status of USB support available online at http://support.microsoft.com/default.aspx?scid=kb;en-us;196661.

Q: How does my serial number work?

A: A serial number is issued for the online registration system. A serial number uniquely identifies Vali-Flash 4.1. This number is not predictable and can be used for online registration. This number is only needed to register and consequently can only be used one time to register one computer. If you purchase multiple copies then you will receive multiple serial numbers. Once you register you may transfer your license but that does not require your serial number. A serial number is issued on your invoice.

Q: If we use commercial grade CompactFlash® can we create the same image on different cards which would be a different size?

A: Yes, providing that the image you burn is smaller then the card (i.e. it will fit on the card). This is the "resize feature" of Vali-Flash 4.1. Keep in mind, that the signatures will be different but then you name the game a different name. Commercial grade or off the shelf cards can vary in size. If you require the exact same size check with your CompactFlash® vendor about "standard grade" (SanDisk® for example) or some other type of industrial grade card which guarantees the exact size of the cards to be the same. If you want to use off the shelf Vali-Flash will pad the image but the signature will be completely different. The reason for this is null data is data. The signature is taken of the entire card. What you can do is name a game, "Game Sample" which some type of naming system so that you can see which card provides the signature. Check with your regulatory commission to make sure this is acceptable and for additional information, contact Dataman.

Q: Does the "resize image" feature create a different signature?

A: Yes. The signature is very specific to the data, including size and everything about the data. Our signatures are based upon the actual data on the card--from the very start to the very end.

Q: Commercial grade CF's usually never have the exact same size, and therefore Validation would create different results. Only industrial grade CF's are guaranteed to have the same size.

A: Yes, SanDisk® calls their industrial grade "Standard Grade" which has a guaranteed size according to their spec sheet.

Q: The manufacturer version of Vali-Flash is able to burn images on CF's but you don't mention to use only industrial grade CF's or the same manufacturer.

A: When you burn an image the first thing Vali-Flash 4.1 does is it checks the size of the card versus the size of the image. If they match, it burns without question. If the card is too small it reports an error (Vali-Flash will never truncate the data). If the card is bigger than the image size it will prompt you to create a resized image. This image file will be created and saved to the disk under whatever name. You can then burn with that image. Please note that the signatures will be different.

Q: What changes the Vali-Flash signature?

A: If the data changes, then the signatures change. Anytime the data is different, it will produce a different CRC32 and SHA1. Keep in mind that the Dataman CRC32 is not as secure as the SHA1 in terms of data tampering. The CRC32 is reasonably secure. However, just be aware that there are ways of tampering with data while keeping the CRC32 signature the same. Vali-Flash keeps these signatures in a database and matches the SHA1 and CRC32. This is extremely secure.

Q: Could you please confirm that we could use Vali-Flash to burn an image of the same size (e.g. 29KB) to CF's with various raw sizes (e.g. 32MB, 64MB, 128MB), and different manufacturers (e.g. Hitachi, Toshiba), and that Vali-Flash after that would create the same signature for these CF's.

A: Vali-Flash will 100% definitely NOT create the same signature with different data sizes. It doesn't matter who makes the card, what matters is the size of the card. These cards are completely read for security reasons. For example, offset data could pose a security risk. The entire card is checked, including slack space and everything. So the signature is very dependent on the data. Think of the signature as a unique fingerprint of that data. If altered or changed the signature will change.

Now this is not a problem. When you create resized images you can use a game name that is specific to that card. Something like "Game Sample Hitachi-128MB-China" can be the game name or "Game Sample 1", "Game Sample 2", etc. Then when you validate this card it will pull up that specific record ("Game Sample Hitachi-128MB-China"). You can have as many of these as you want, all you have to do is put some forethought in the naming methodology. There is no reduction of security at all, with the added benefit of being able to use cards off the shelf. If the cards are altered or changed or go bad, they will still produce a completely unknown signature.

We do have another product that does not check "meta-data". It only checks the files. This product is called Vali-File.

Q: If you create resized images of the same original data, is there any way to know that the original data is the same on those different images, and that the original data is just put onto different sized CF's?

A: No. Not currently. A SHA1/CRC32 is calculated for that card in full. A resized image is just the base image + padded (all zeros) data to the end until the end of the drive. This obviously changes the signature, if the data size is different.

Q: The Vali-Flash program generated a CRC32 of 399FCU6F. As I understand, it generates a CRC32 a 32 bit hex value. 'U' is not a hex value [0-F]. For which number does 'U' stand for? Does it stand for '0'?

A: The CRC32 is actually a Dataman CRC32. The Dataman CRC-32 algorithm is proprietary to Dataman. The calculated signature has similar properties to that of the CRC-32 algorithm, which is used to identify data corruption. All Dataman validators will produce the Dataman CRC-32 signature.

Now the SHA1 is a standard SHA1 algorithm. The SHA-1 hash algorithm refers to a published standard; please see the Secure Hash Standard, in the Federal Information Processing Standards Publication 180-1. This publication is available at http://www.itl.nist.gov/fipspubs/fip180-1.htm.

So the 'U' actually stands for a 'U'. This is the same for Vali-File, the Dataman S4 Validator and Dataman Vali-Flash.

Q: Does a different 'created' timestamp of a file change the Vali-Flash signature?
Q: Does a different 'modified' timestamp change the Vali-Flash signature?
Q: Does a different 'accessed' timestamp change the Vali-Flash signature?
Q: Does a different 'created' timestamp of a folder change the Vali-Flash signature?

A: With Vali-Flash, the entire card is validated. If *any* data changes, the signature will change. The created timestamp is part of the file system. If any part of the file system changes, then the signature will also change.

Folders, files, attributes, metadata, slack space, etc. is all included in the raw data. If any part of this changes then the signature will not match.

Q: Does the order of the files change the Vali-Flash signature?

A: Yes. Files are not looked at. The raw data is analyzed.

Q: I would also like to know what actions change the Vali-Flash signature?

A: Anything that changes the raw actual data on a CompactFlash card would change the signatures.

Q: Does viewing properties of files on a PC change the Vali-Flash signature?

A: If viewing a file caused the OS to update the access timestamp then yes. Otherwise no. File systems that are supported by Windows® can be updated. This is outside of our control.

Customers who do not use Microsoft® Windows® supported file systems do not have this problem.

Customers who use a file system supported by Microsoft® Windows® would be advised to request a read-only reader. The actual reader will prevent the OS from writing to the card. This can be bundled with Vali-Flash as a special order but due to supplier requirements it cannot be resold as is. It must be bundled with Vali-Flash. Contact us for more details.

Q: Does copying files on a PC change the Vali-Flash signature?

A: Copying a file would update the access timestamp and thus changes the raw data, so yes. Unless some software layer blocked the write or timestamp was not used or the media is read-only. By default they will change.

Q: Does opening files on a PC change the Vali-Flash signature?

A: Yes, this would change the access timestamp of that file by default.

Contact Us

If you wish to contact us for sales, technical support, or general questions then please use the information below.

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