Introduction

Thank you for purchasing the Retro Flash game cartridge by Mash-Mods. With this you are sure to have the most authentic Super Nintendo retro gaming experience possible!

Features

Cartridge

- Supports both LOROM and HIROM games up to 4MB
- Up to 32kB of Save RAM with configurable size
- Settings stored in EEPROM
- Uses authentic CIC chip and recycled cartridge case, no modifications required!
- Supports copy protected games

Programmer

- High speed reading and writing through USB port with no extra cables
- Back up your rare games and play in an emulator legally
- Back up Save RAM, or copy saves between an emulator and a real game

Some games use special chips to provide enhanced graphics like the DSP, SA-1, SDD-1, Super FX, etc. Unfortunately it is impossible to play these games.

Installation

The first step is to install the D2XX drivers from FTDI. They are available on the install CD or from the FTDI website (www.ftdichip.com/Drivers/D2XX.htm).

After the drivers are installed, download the *snesflash.exe* application from the website (www.mash-mods.com) or from the install CD. Place this in any folder, preferably where the game ROM files will go. It should be easily accessible from a windows command prompt since it is a console application.

When you want to read in a game or program a flash cartridge place the programmer board on flat, nonconductive surface like a desk. Plug the board into your PC using a standard USB A-B cable. The green power light will come on.

When you are finished using the programmer, unplug it and put it away. It is not recommended to leave it plugged in since the pins are exposed on the bottom. Always make sure you ground yourself before touching the programmer board.

Inserting a Cartridge

You can insert a game cartridge or a flash cartridge into the programmer's game slot. The game label always faces forward, towards the circuit. The back side is labeled BACK on the programmer PCB. Inserting it backwards could possibly damage the cartridge or the programmer! Make sure the cartridge is seated firmly and stands straight up. A good connection is important to avoid any errors.

When the red light is on power is applied to the cartridge. It should never be unplugged or disturbed in this state. When the light is off the programmer is finished and the cartridge can be removed or inserted at any time, even when the USB cable is still plugged in. If the light is stuck on use the –x command to turn power off.

Running the Program

The *snesflash.exe* program is a windows console program that can be run either from the windows command line (*cmd.exe*) or from a simple batch file.

For example create a text file called *run.bat* in the same directory as the main program that contains the following lines:

```
snesflash
pause
```

When you double-click on *run.bat* a window will appear showing you all the command line options and a few examples. Add any extra commands you need to the first line.

Read/Write Commands

-re	Display EEPROM information
-rf [filename]	Reads ROM to file
-wf [filename]	Writes file to flash memory
-rs [filename]	Reads Save RAM to file
-ws [filename]	Writes file to Save RAM

These commands allow you to read a game ROM and read/write flash memory and Save RAM. The filename can be any valid file or path from the current directory. If it contains spaces enclose the path in quotation marks.

To read a game ROM and Save RAM with auto detect

```
snesflash -rf game.bin -rs game.srm
```

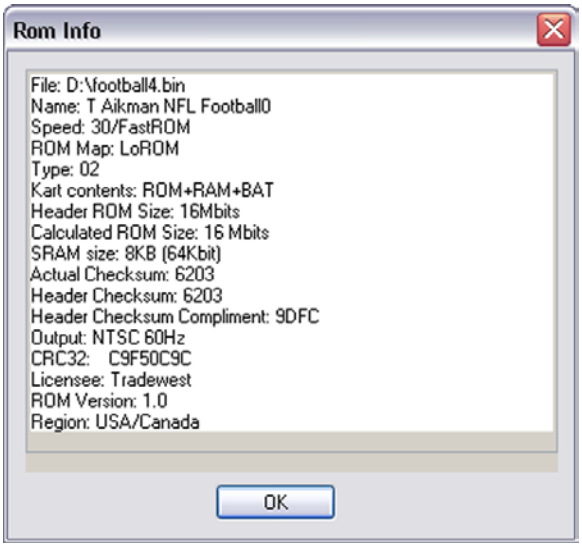
To program a flash cartridge with auto detect and long paths

```
snesflash -wf "D:\My Documents\My Game.bin"
```

Only Retro Flash cartridges can be reprogrammed with a new ROM, but the Save RAM can be written to on any game cartridge. Writing to flash may take several minutes for the largest games. If any write errors are reported, the game must be re-written. This is usually due to a bad connection.

Games files in BIN, SMC and SWC format can be written. Reading is always done in BIN format. Save RAM files usually have the SRM extension.

When reading a game ROM it is important to verify there are no errors. Open the ROM file with an emulator such as Snes9x (www.snes9x.com) and go to File –> Rom Information.



This example shows the correct game name, a matching checksum and correct ROM size.

If the checksum matches and the game starts up then the file is good! If the information is not correct (no game name, bad checksum…) then the cartridge should be inserted properly and read back again.

If the file size is too small then it can be read again using the –k command to get the missing data. If the file is too large it may be cut down (for some games that are 1.5MB).

This screen is also useful for writing games to flash since it shows if the game uses Save RAM or any extra chips. This should match the information used by *snesflash.exe*.

Manual Settings

-we	Update EEPROM
-h	Force HIROM mode
-l	Force LOROM mode
-s2	Enable 2kB Save RAM
-s8	Enable 8kB Save RAM
-s32	Enable 32kB Save RAM
-m	Full mirroring to use entire 4MB
-k [size]	How many kB to read back
-x	Power off

These commands are optional and allow manual settings and adjustments to be made.

Normally the ROM mode and Save RAM size are automatically detected when writing to flash memory. If this is incorrect the game won't work, but can be fixed with manual settings. The ROM mode can't be changed without re-flashing, but Save RAM can be changed by updating the EEPROM.

To program a flash cartridge with manual settings

```
snesflash -h -s32 -wf game.bin
```

To change Save RAM size to 8kB

```
snesflash -h -s8 -we
```

Some games check how much Save RAM is available as a form of copy protection. If you get any messages like this be sure the Save RAM size matches that used by the emulator.

When reading a game, the size is also automatically detected. To manually specify a read size, use the –k command to specify the number of kilobytes. Eight megabits is equal to one megabyte, which is also 1024 kilobytes.

To read 2MB of a game

```
snesflash -k 2048 -rf game.bin
```

A few games require the ROM data to fill the entire 4MB address map. This is usually not necessary, but can help with compatibility.

To specify full mirroring

```
snesflash -m -wf game.bin
```

Disclaimer

This product allows you to make backup copies of commercial games for personal use only. It may be against the law in your country to re-distribute or download commercial ROMs and this practice is highly discouraged.

The flash cartridge is intended to play personal backups as well as public domain and homebrew software. It can also be used for development of compatible software.