

Savgame manager V0.2.4

A tool by Pokedoc.

(This Readme file is not completed yet!)

1. Introduction

Thank you for your interest in this tool!

Savegame Manager is a homebrew tool designed to backup and restore saves from retail game cartridges for the Nintendo DS. It is very similar to the popular Rudolph tools for backing up and restoring saves, however with a few differences:

- Supports Pokemon HG/SS/Black/White
- Supports multiple backup methods in one tool: 3in1 (DS saves), WiFi/FTP (DS saves), GBA (GBA saves, no EEPROM-type saves)
- Completely open source (GPL V2), should Nintendo change something, the program can be easily updated without reinventing the wheel
- This tool does NOT support ROM dumping. It will never do. Any requests for ROM dumping support will be IGNORED!

1.1 Known issues

As it turned out during the testing phase, several flash cards exhibit a weird behaviour, interfering with this program. What follows is a list of known issues with specific flash cards. If your card is not on this list, then everything should work (or no one has tested it on your card yet).

Action Replay DSi: The homebrew does **not** work on the AR DSi. You may need to manually apply a DLDI patch. (See section 3.1 for more instructions.)

Various R4 clones: There are more R4 clones out there than anybody can count, some of which have various issues. I am trying to support them as well, but if it does not work yet, you are out of luck.

1.2 Work in Progress

I am continuously trying to improve the program, adding more features while not breaking anything. The following features are currently found on my list of things that I want to do:

- (planned for 0.3.0) Finish this readme file. Even though there is always something that can be improved, the file currently has some obvious holes which I am aiming to fill.
- (planned for 0.3.0) Support for Slot 2 flash cards. If the tool is running from a Slot 2 flash card, it will try to detect that and dump/restore saves to Slot 2.
- (planned for 0.3.0, partially implemented) Add support for translating this tool by exporting all messages to an external file.
- (planned for 0.3.0) Don't force the user to restart the program if it can continue safely. (Only 3in1 mode needs this.)
- (planned for 0.3.0) Add an ini file option to support new save chips. Write a section how to do this.

- Apply patches/fixes developed by the community.
- Find some web-based platform to upload/preserve my source code. (Google Project Hosting?)

2. Setting everything up

This tool does NOT work on the DSi/XL/3DS! No one seems to know how to fix this. (See section 4.1 if you can help with this.)

Copy the "savegame_manager.nds" file to a convenient place on your microSD-card. Copy the "savegame_manager.ini" file into the root folder of your microSD-card. (You can also try to copy it into the same folder as the nds file; it depends on your Flash Card if this works. If you get an error message claiming that your ini file was not found, it does not work, and you need to move it to the root folder.)

If you get a "**DLDI error**" on start, your flash card is ancient and/or does not support auto-DLDI patching (because the program does not find your microSD-card). You will need to patch the program by hand, following the instructions in section 2.1

Setting up the rest depends on the backup mode you want to use:

- If you are running this program on a DSi/XL in DSi-mode (currently only the Cyclops iEvolution supports this), you will get an error message that the program does not work in this mode.
- If you have an EZFlash 3in1 inserted in Slot 2, the program will enter 3in1 mode. See section 2.2 how to set this up.
- If you have a GBA module inserted in Slot 2, the program will enter GBA mode. See section 2.3 for notes on this mode.
- If none of the above is valid, the program will enter WiFi/FTP mode. See section 2.4 how to set this up.

I am also hoping to support Slot 2 flash cards in the future.

2.1 Setting up DLDI

If you get a "DLDI error", you need to patch your flash card manually. (This needs to be done only once.) Go to

http://dldi.drunkencoders.com/index.php?title=End-user_instructions

and follow the instructions there. Next, you will need an appropriate DLDI driver for your flash card. The following list includes a list of drivers required to get your Flash Card running, and where to find them.

Action Replay DSi: This hardware seems to require the "xxxx" DLDI driver, found "HERE", and even then, there are mixed reports of success; if Datel changed the hardware on their device without releasing a new DLDI driver, you are out of luck. And it will still not work on the DSi!

Various R4 clones: depending on the hardware found on your R4, you will need one of the following DLDI drivers:

.....

2.2 Setting up 3in1 mode

The EZFlash 3in1 is a piece of hardware manufactured by Team EZFlash that serves as a memory expansion, rumble pack and GBA flash card, which is supported by pretty much every Slot 1 flash card out there.

Other than keeping the 3in1 in Slot 2, you don't need any additional work to set everything up. As of V0.2.4, it work even if your 3in1 SRAM battery is dry. To backup/restore your save, select one of the options on the lower screen, and follow the instructions.

2.3 Setting up GBA mode

There should be nothing to set up here. Please keep in mind that "EEPROM"-type saves are not supported yet, since there is no documentation how to access this type on the DS. BATEK claims it can't be done. Rudolphs GBA backup tool (0.2+) supports it anyway, but it is closed source. If you can help, please see section 4.

2.4 Setting up WiFi mode

Okay, this may be a little bit complicated. You will need to set up two things: a compatible **wireless access point**, and an **FTP server** running on a computer behind your access point. (This only needs to be done once.)

2.4.1 The FTP server

An FTP server provides a directory on your PC where you can store and retrieve data from any compatible FTP client. The homebrew implements a very rudimentary FTP client, mostly tailored to the compact FTP server smallftpd. Other FTP servers may or may not work. I strongly suggest that you use this server, though: it is free, non-intrusive (delete the directory, and it should be gone for good), and it works with the homebrew.

Windows XP: smallftpd. Download and unpack smallftpd-1.0.3-fix (Google is your friend). Double-click on the file "smallftpd.exe", and open "Settings/General". Take note of the **FTP port** (should be 21). Next, open "Settings/Advanced" and **tick the box "Use local IP"**. Finally, open "Settings/Users". Click "Add", and enter a **username** into the box "Login" and a **password** into the box "password". Finally, click the button "Add" next to the "Directories" field. Leave "virtual path" as is, and **select a directory** in "physical path". This is where your saves will go on your computer. Finally, click "add" next to the "Permissions" field, and **make sure that the "permissions" field says "LRW"**, or you will not be able to dump your files.

After statting the program, you will need to press the yellow "play" button to start the server (or you can tick the "autostart" box in the basic setings).

Other FTP servers will be added as a working set of parameters has been found out.

Next, open the savegame_manager.ini file and edit the following fields (enter the same values you entered in the FTP server):

ftp_user = **username**

ftp_pass = **password**

ftp_port = **FTP port**

The fourth entry will be found in the next section.

Other FTP servers will be added as a working set of parameters has been found out.

2.4.2 The access point

The access point (AP) is where your DS logs in to connect to your computer. **You will need an AP with "insecure" settings**, since the DS can only do WEP encryption (which is insecure). If you got a wireless AP from your internet provider, you may not want to disable encryption, opening your network to hackers. Instead, you can opt to buy a cheap USB WiFi stick and transform it into a

wireless access point. **Do not buy any USB stick, you need a specific "chipset" for this to work!**

The manufacturer Ralink is offering drivers for all Ralink-based USB sticks that allows to run the device in SoftAP mode (which is what you want). Unfortunately, Ralink is not selling its devices using their own name; instead, you need to find a device which happens to be running with a Ralink chipset. Practically no stick advertises this (and most manufacturers use "crippled" drivers which offer NO SoftAP mode). You will need to use Google and a small amount of guesswork to find a compatible device. (Some online traders may even send you a "compatible"/"comparable" product, which might use a wrong chipset.)

Known brands which **often** use the correct chipset include Hama, ... (more will be added as it is discovered).

After you found a compatible chipset, you can download a driver from the Ralink web site. Insert the stick, right-click on the "Rx" icon which should have appeared in your systray, next to your clock, and select "switch to AP mode". After some time, a cofig window should pop up. Select an SSID (a name) for your AP (e.g. "NDS"), and make sure that your SSID is **not hidden**.

From this point, all you need is to plug your WiFi stick in your PC to connect to your DS, and remove it later.

Now, start any game that uses the wireless connection on your DS, and elect the "configure Nintendo WiFi connection" on the title screen. Set up a connection to the WiFi SoftAP which you just configured; if the test connection works, your DS is now ready to connect to the FTP server.

Now you only need to discover the P address of your computer. On Windows, press "Start/Control Panel", and in the opening window "Network and Internet Connections/Network Connections". You will now see a list of network connections on your computer. Select one connection that has no red "x", and figure out your **IP address** (using right-click / "Properties", or the properties settings in the left info bar). If you see multiple IP addresses, it is not always trivial to get the correct one; just keep trying until you find one that works. (If the program complains about not finding an FTP server, you probably got a wrong address.)

And now, everything should be set up. For future use, just plug in the USB stick, and the rest **should** work automatically on any Windows from XP onwards. (On Vista/7, you may need to tweak something with your Firewall or other settings. I am still running XP, so I don't know what might go wrong. My experience tells me that something will go wrong, though.)

2.4.3 Link quality

The WiFi link quality can vary depending on your distance to your access point, the load of your PC, or the current humidity (yes, it can be **that** bad). The program will take considerable effort to get everything to/from your WiFi server, but under some circumstances, it is just **slow**. You will get a warning if your connection is slow, but in general, the save data will make it to your DS.

However, interruptions of a few seconds are possible, in this case, just try to get closer to your access point. (If nothing happens after about one minute, though, you better restart the program and retry.)

3. Using the homebrew

No matter which mode the program is running in, the usage of the program is very similar. You will get a choice of three options on the lower screen: "Backup", "Restore" and "Delete". The first two options are for dumping your save or writing a save back to your retail cartridge.

3.1 Backup

First, you will be prompted to remove your flash card and replace it with a retail game cartridge.

The program will identify the retail cartridge and the save chip (plus the infrared device, if you are using a Pokemon game).

In 3in1 mode, the save will now be written to your 3in1, and you will be prompted to reboot your DS and restart the program. Other backup model will directly continue to the following part.

You will now need to select an existing file to overwrite, or press (L+R) if you want to write a new file without overwriting anything. In FTP mode, it will take a few seconds to present you the existing files in your target directory.

If you selected a new file, the program will now search for an unused filename based on the game title. After finding the new filename, the save will be dumped. How long this takes depends on the save size and the backup path. (FTP, in general, is slower than other options.)

3.2 Restore

Restoring a save is easier than dumping it. You will first be prompted to select a filename, and then, this filename will be loaded into memory. Then you will be asked to replace the flash card with a target game cartridge. And finally, the save will be restored.

3.3 Delete

It is very likely that you will never need this. It will delete your save WITHOUT BACKUP, your cartridge will be reset as if you had just bought it. This might be useful to reset some once-per-cartridge features (e.g. Manaphy Eggs on Pokemon Ranger).

For your own safety, this option is protected by multiple warnings and a quite unintuitive button combination.

4. Help Wanted

Yes, you can help developing this tool. There are several points that do not work yet, mainly due to a lack of knowledge of some details on the DS. If you know how to do any of the following things, feel free to contact me (www.projectpokemon.org, username: Pokedoc).

Right now, I need help with the following points:

- **DSi Slot 1 access.** After removing the cartridge in Slot 1 and inserting anything else, it is no longer possible to access the game cartridge, and therefore, the game save. This might be related to the DSi not restoring power to Slot 1 after switching a cartridge. The System Menu does manually restore the power, so it should be possible to do on a DSi-mode flash card, but no one found out how (or bothered to document it).
- **DSi SD-slot access.** According to the current state of knowledge, the SD slot is locked out after anything runs from Slot 1, including flash cards. Maybe it is possible to unlock it, but no one knows how.
- **WPA encryption.** The DSi supports WPA encryption in hardware, and (as you may have guessed), no one seems to have understood it yet.
- **GBA EEPROM backup.** GBATEK claims it can't be done, Rudolph demonstrated that it can be done. But he told no one how it can be done. So, if you happen to know how to reach the save on EEPROM-type GBA cartridges, please share this knowledge so that the GBA mode can be finished.

5. FAQs

Q: Is it safe?

A: It should be. I have put considerable amount of work in the program to prevent saves from being deleted, and pretty much everything is double-checked before anything is done to your retail cartridge. In FTP mode, the entire save is loaded from the server before your save is touched, so if your wireless connection should die at the wrong point, your game will remain safe.

Q: I am getting a zero-sized save size!

A: Ah, this means that Nintendo is using a new save chip, which is not known to the homebrew yet. I am planing to add a new ini file option that will be able to add new save types on-the-fly, but it is not ready yet. Should be done for V0.3.0 (crosses fingers)

Q: I can't restore Band Brothers DX/Jam With the Band through WiFi!

A: This is for your own safety. The save used by this game is bigger than what the memory of the DS can hold. And to prevent your save from being damaged, e.g. by a bad WiFi connection, restoring too large saves has been disabled. (I will unlock this option in a later version.) Or you can buy a cheap 3in1, it does not have this limitation.

Q: I can't dump saves using WiFi!

A: Make sure that you have WRITE access on your FTP server. Smallftpd only gives you read access by default.

6. Acknowledgements

Many thanks to everybody who contributed to this development, either directly or indirectly. If you believe that your name should appear here, just contact me.

- Thomas Pfau, for his compact FTP library
- Simon White, for his ini-parsing library
- Everybody at projectpokemon.org who was willing to beta-test this software.
- Everybody who has ever contributed on devkitpro. Keep up that good work!

7. Contacting me

Due to a rather stressful Real Life, I am restricting contact related to this program to the projectpokemon.org community. If you have issues, improvements or anything else, feel free to send me a PM (Pokedoc). I can't promise you a fast answer, but I will eventually be able to reply.