Memory Stick Utility

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1. Introduction

Memory Stick Utility is a multi-purpose application designed for the PlayStation Portable console to perform various actions with the Memory Stick. One of the main benefits of this software is it allows users to extract the IPL from the Memory Stick, this is useful if the IPL is not obtainable through a file and you wish to make a full backup of your Magic Memory Stick. An example of when this is beneficial is extracting the Datel Action Replay PSP which comes pre-injected with the Memory Stick included with the product. This application allows the user to extract that IPL and use it with another Memory Stick.

This application currently has a number of known problems which I have been unable to fix. These problems are listed in a later section of this documentation, if anyone can assist in fixing these problems please e-mail me at the address included in this documentation, private message me or post a reply on a forum which I have posted this application. I have also included the source code of this application for reference in assisting me fix the issues or for use in your own application. If you are to use any source in your own application it would be greatly appreciated if you acknowledge my work. Any assistance provided in fixing the issues will earn you a place in the contributors list in the application.

2. Feature Summary

Memory Stick Utility allows you to do the following:

- Connect various devices through a USB cable
- Inject a variety of included IPLs or an IPL from a file to the Memory Stick
- Erase the entire IPL space of the Memory Stick
- Check the IPL injected on the Memory Stick or a file located on the Memory Stick
- Create a checksum of the IPL injected on the Memory Stick or an IPL located on the Memory Stick
- Extract the IPL injected on the Memory Stick to a file

3. Recommended System Requirements

- Custom Firmware 3.40 OE-A to 5.00 M33-3 (not compatible with Sony Official Firmware)
- A correctly formatted Memory Stick with 10MB~ of free space to store the application, temporary files and extracted data

4. Feature Descriptions

USB Connection

Allows for various devices to be connected through a USB cable. This function will only mount the Memory Stick when using a firmware through Time Machine or a firmware which does not contain the Dark_AleX custom firmware USB module. The devices which can currently be connected through USB mode are:

- Memory Stick
- Flash 0
- Flash 1
- Flash 2
- Flash 3
- UMD Disc.

Inject IPL to Memory Stick

Inject IPL to Memory Stick allows for a variety of included IPLs or an IPL from a file on the Memory Stick to be injected to the IPL sector of the Memory Stick. The IPLs which are included are:

- Time Machine IPL
- Boosters Multi IPL
- Z3ros0ul Single IPL (Sleep Fix)
- Z3ros0ul Multi IPL (Sleep Fix)
- Classic Pandora IPL
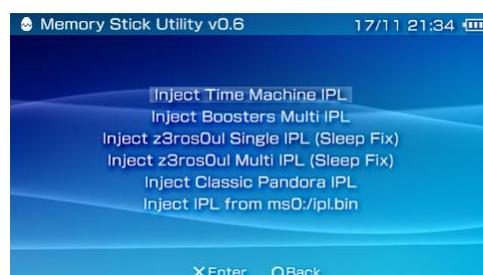
Erase IPL from Memory Stick

This function detects the amount of reserved IPL space and then removes that data from the Memory Stick. It is important to note that a deleted IPL cannot be recovered using any type of recovery software as the actual data is completely erased and you should always extract the IPL before you erase it.

Check Memory Stick Information

This mode contains various functions, these include:

- Check Injected IPL: Computes a SHA1 hash of the first block (4,096 bytes) of the injected IPL, compares that hash to an array of pre-computed hashes associated with a name and size of the IPL and displays to the user what IPL is thought to be injected to the Memory Stick.
- Check IPL at ms0:/ipl.bin: Computes a SHA1 hash of the first block (4,096 bytes) of the file at ms0:/ipl.bin, compares that hash to an array of pre-computed hashes associated with a name and size of the IPL and displays to the user what IPL is thought to be at ms0:/ipl.bin.
- Check Memory Stick MBR: Shows various information about the Memory Stick MBR (this is the same information shown by MSINST).
- Check MBR at ms0:/mbr.bin: Shows various information about the file at ms0:/mbr.bin (this is the same information shown by MSINST).
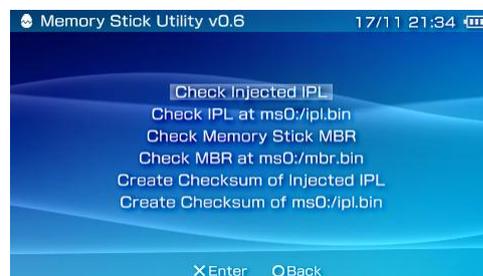
- Create Checksum of Injected IPL: Computes a SHA1 hash of the first block (4,096 bytes) of the injected IPL and saves that hash to ms0:/checksum.bin. This file is generally not useful for the common user however is useful in adding detection of more IPLs.
- Create Checksum of ms0:/ipl.bin: Computes a SHA1 hash of the first block (4,096 bytes) of the file at ms0:/ipl.bin and saves that hash to ms0:/checksum.bin. This file is generally not useful for the common user however is useful in adding detection of more IPLs.

Extract Current Memory Stick IPL

This mode contains various functions, these include:

- Extract Memory Stick IPL: Extracts the data beginning at sector 16 of the Memory Stick to a file. The amount of data which is extracted is dependent on the IPL injected to the Memory Stick and the reserved IPL space. Firstly if a known IPL is detected a specific number of bytes is extracted to the file. Otherwise the data is read one block (4,096 bytes) at a time and once a block of blank data 00's is reached or the end of the IPL reserved space is reached the extraction process stops.
- Extract Entire Memory Stick IPL Space: This function is useful for extracting the IPL when the first method does not work correctly. This function dumps the entire reserved IPL space to a Memory Stick.
- Extract Memory Stick MBR: This function extracts the MBR of the currently inserted Memory Stick to ms0:/mbr.bin.

5. Support

Frequently Asked Questions

Q: This software does not create a full dump of my IPL?
A: Your IPL may have a blank block (4,096 bytes) within the IPL which causes the application to stop dumping it. Please send the IPL to my e-mail address so I can add detection of the IPL to the next release or send me a checksum of the IPL, the name of the IPL and the original size of the IPL.
A2: Use the second dump method to dump the entire IPL space.

Q: The application freezes when dumping/injecting/erasing/checking the IPL?
A: Your Memory Stick may not be formatted correctly please reformat your Memory Stick using MSPFormat.

Q: This software does not detect my IPL?
A: Your IPL may not be the size of a full block (4,096 bytes).
A2: The application may not have a definition for the IPL please send the IPL to my e-mail address so I can add detection of the IPL to the next release or send me a checksum of the IPL, the name of the IPL and the original size of the IPL.

Q: What is the IPL?
A: The IPL is the startup process of the PSP, when using a Memory Stick injected with an IPL and a battery with the serial 0xFFFFFFFF the PSP can be booted into service mode allowing for the installation of custom firmware and unbricking of a PSP console.

Q: Can this application extract the Datel Action Replay IPL from a Memory Stick?
A: Yes it can, the IPL has also been tested with Memory Sticks of different brands and sizes and has been compatible, however the user must still have Official Firmware and a PSP-1000 unit or PSP-2000 unit without a TA-088v3 motherboard.

Q: The application detects that I have sufficient space to inject an IPL but when I attempt to inject that IPL I get an error saying there is not enough reserved sector space, why?
A: When the IPL is injected it must be written in blocks the size of the sector (default of 512). The application

cannot detect the sector size and uses the default of 512 and therefore a maximum extra of 512 KB is required when injecting the IPL, this however will not be an issue in most cases.

Q: The application keeps corrupting my Memory Stick when I inject an IPL?
A: This issue should not arise due to the reserved IPL space being verified before injecting an IPL however if it does please use MSPFormat to format the Memory Stick.

Known Problems and Issues

- Although I have not proven that this is an issue the detected IPL space is not always the same as what is detected by Rain's application this is because Rain's application rounds the space down to the nearest multiple of 4KB whereas mine does not. If anyone finds that due to this their Memory Stick becomes corrupt I will make the IPL space round down.
- Extracting IPLs with blocks of blank data larger than 4,096 bytes within the IPL causes the application to stop dumping the IPL, to dump the full IPL in this case you must currently use the Extract Entire Memory Stick IPL Space option.
- USB mode doesn't work when some plug-ins are loaded (ScreenShotPNG Speady Plugin).

Change Log

0.6 (Tuesday, 18 November, 2008)

- Added: Option to extract Memory Stick MBR
- Added: Detection of available IPL space and Memory Stick information (thanks to Torch)
- Added: Option to extract entire IPL space from Memory Stick (thanks to Torch)
- Fixed: Bug which caused corruption of Memory Stick when injecting an IPL larger than the reserved space (thanks to Torch)
- Fixed: Entire IPL Area is now erased from the Memory Stick (thanks to Torch)
- Fixed: Issue detecting injected IPLs smaller than 4,096 bytes
- Fixed: The IPL size is only rounded up to the nearest multiple of 512 if it is not already a multiple of 512
- Other: PRXs are now stored internally for easier installation of application
- Other: Reverted IPL injection back to style from 0.4

0.5 (Tuesday, 11 November, 2008)

- Added: Added VLF (XMB) style interface
- Added: USB Connection of Memory Stick, Flash 0, Flash 1, Flash 2, Flash 3 and UMD Disc
- Fixed: Minor bug fixes and changes
- Other: Removed the last 4,096 blank bytes from the Time Machine IPL to reduce size

0.4 (Tuesday, 4 November, 2008)

- Fixed: Issue injecting ms0:/ipl.bin twice in the same session
- Fixed: IPL extraction for unknown IPLs
- Other: Multiple minor alterations

0.3 (Saturday, 1 November, 2008)

- Added: Support for injecting an IPL from ms0:/ipl.bin
- Added: Support for injecting Boosters Multi IPL, z3ros0ul Multi IPL and z3ros0ul Single IPL
- Added: Detection of 8 IPLs
- Added: Another method of extracting IPLs based on detection of the IPL
- Added: Option to create a checksum of the first block (4,096 bytes) of the injected Memory Stick IPL
- Added: Callbacks are now created to allow for exiting the application via the HOME button
- Added: Support for erasing the IPL from the Memory Stick
- Fixed: Increased accuracy of IPL dumps

0.2 (Friday, 31 October, 2008)

- Added: Basic menu for navigating available operations
- Added: Support for injecting Time Machine IPL and Classic Pandora IPL
- Fixed: Now seeks directly to the IPL instead of reading rubbish data before dumping the IPL (thanks to Rain)
- Fixed: Increased accuracy of IPL dumps (thanks to Rain)

0.1 (Saturday, 21 October, 2008)

- Other: Initial Release

Warranty Information

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Contact Information

If you are experiencing difficulties with any aspect of this software please ensure that you have read and understood the contents of this user manual and attempted re-installing the software before contacting technical support for further help.

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