

DMD Extender

SD Card

Information and Maintenance

v1.0 April 2016

## Introduction

This document gives details of the format, content and maintenance of the SD Card supplied with your DMD Extender. Please pay special attention to the following section relating to the product keys on your SD Card.

## Important – Product Keys

The SD Card contains product keys linked to the card itself – the keys are stored in the file 'pinball.txt' under sections 9001, 9002, 9003 and 9004.



It is not possible to copy the files to another SD Card – the software will not function on another card.



Do not update the contents of the file 'pinball.txt' – use the configuration utility DmdExtConfig.exe to modify the DMD Extender settings.



Do not reformat the SD Card or delete any of the files.

In the event of the SD Card becoming corrupted, please follow the instructions in this document, section 'Regeneration' and contact Dr Pinball at [pins@drpinball.co.uk](mailto:pins@drpinball.co.uk).

## SD Card Format

The SD Card supplied with your DMD Extender is a 4GB SDHC Micro SD Card with Adapter.

The card is formatted with a single partition as follows:

FAT16 1Gbyte Partition

Linux tool 'fdisk' reports the following for the SD Card:

Device	Start	End	Blocks	Id	System
/dev/mmcblk0	2048	2099199	1048576	6	FAT16

## SD Card Contents

The SD Card contains the following files:

File Name	Supplier	Description
bootcode.bin	Raspberry Pi (Github)	Boot file
config.txt	Raspberry Pi	Configures the boot options of the Raspberry Pi – full details of its contents can be found here: <a href="http://elinux.org/index.php?title=RPiconfig">http://elinux.org/index.php?title=RPiconfig</a>
DmdExtConfig.exe	Dr Pinball	Configuration utility to set up the DMD Extender options. Must be run on a Windows operating system.
fixup.dat	Raspberry Pi (Github)	Boot file
kernel.img	Dr Pinball	DMD Extender software
keyregen.txt	Dr Pinball	Contains the information necessary to regenerate the security keys
LICENCE.broadcom	Raspberry Pi (Github)	Broadcom licence details
LICENCE.drpinball	Dr Pinball	Dr Pinball license details
pinball.txt	Dr Pinball	Configuration file. Written and controlled by DmdExtConfig.exe. Read by kernel.img to configure the DMD Extender software.
start.elf	Raspberry Pi (Github)	Boot file
VERSION.txt	Dr Pinball	Version information for the DMD Extender files
Config.BAK	Dr Pinball	Backup of the original config.txt file
Pinball.BAK	Dr Pinball	Backup of the original pinball.txt file

The files supplied by Raspberry Pi can be found at the following location:

<https://github.com/raspberrypi/firmware/tree/master/boot>

## Configuration File Pinball.txt



Do not modify or delete this file – it contains the security keys for your DMD Extender. If the security keys are incorrect or become corrupted the DMD Extender will not function.

When the configuration tool is first run, a backup of this file will be created called 'pinball.BAK'. In the event of a problem with 'pinball.txt' you can rename 'pinball.BAK' to 'pinball.txt' and run the configuration utility (DmdExtConfig.exe) again, selecting 'Save'.

## Regeneration

If your SD Card becomes corrupted, please contact Dr Pinball for help – [pins@drpinball.co.uk](mailto:pins@drpinball.co.uk).

To assist you, the following sections give steps to recreate your SD Card, but please contact Dr Pinball first.

### ***New Card***

You will need to purchase a 4Gb SDHC Micro SD Card (with Adapter if necessary).

### ***Partitioning***

To assist in the partitioning of a new or existing card, a disc image file (IMG) has been created and can be downloaded from:

<http://www.drpinball.co.uk/Downloads/dmdextimg/dmdext.zip>

The zip file contains the image file 'dmdext.img'.

To write the image to the SD Card, follow the instructions at the following address:

[http://elinux.org/RPi\\_Easy\\_SD\\_Card\\_Setup](http://elinux.org/RPi_Easy_SD_Card_Setup)

See section 'Flashing the SD Card' – use the file 'dmdext.img' to flash your SD Card.

### ***Copy Files***

You will be sent a zip file containing the files needed.

1. Copy the files inside the zip file onto the SD Card

2. Download DmdExtConfig.exe from the following location:

<http://www.drpinball.co.uk/Downloads/Latest/DmdExtConfig.exe>

3. Copy DmdExtConfig.exe onto the SD Card

4. Run the configuration utility DmdExtConfig.exe and select 'Save'

5. Insert the SD Card into the DMD Extender and start the pinball machine

6. When you see the Dr Pinball log on screen (you will see an error relating to security keys), switch off the pinball machine

7. On the SD Card you will find a file called 'keyregen.txt' – send this file to Dr Pinball

8. Dr Pinball will send you a new file called 'keyupdate.txt' – copy this file to the SD Card

9. Run the configuration utility DmdExtConfig.exe – accept the new keys and select 'Save'.

Your new keys should be correctly written to the SD Card and your DMD Extender should now function.

## Upgrading the Software

Upon request, you can receive the latest version of the software from Dr Pinball. You will be sent a zip file containing the files needed.

1. Take a backup copy of the files on the SD Card
2. Copy the files inside the zip file onto the SD Card
3. Download DmdExtConfig.exe from the following location:  
<http://www.drpinball.co.uk/Downloads/Latest/DmdExtConfig.exe>
4. Copy DmdExtConfig.exe onto the SD Card
5. Run the configuration utility DmdExtConfig.exe and select 'Save'.