

TESTING

A valid question is how one can tell if the pseudo-random generator, the seeding, and the skewing is working. My initial simulation was done in Open Office Spreadsheet, followed by creating the code in BASIC, then in DVD Lab.

My best testing results, in the sense of meaningful information, once I'd migrated the code to DVD Lab, was accomplished using Mark's player. I got most of my information from Mark's register dump. Once the player is running, pressing F12 gives a dynamic display of the register contents, as shown below.

Suppose you are checking to see if the seed is working. Before you click on whatever you've created to capture the counter value, you should see GPRM2 counting upward, once per second.

System Register	Value
0 - Menu Language	en - English
1 - Current Audio Stream	15 (Stream 16)
2 - Current Subtitle Stream	Not set (62)
3 - Current Angle Stream	1
4 - Current Title Number	50
5 - VTS Title Sequence Number	50
6 - Current PGC Number	50
7 - Current Chapter Number	1
8 - Current Button Number	1 (0x0400)
9 - Navigation Timer Seconds	0 Seconds
10 - Timer Target PGC Number	0
11 - Player Audio Karaoke	Not Applicable
12 - Country Code Parental	US - United States of America

User Register	Value (Right-Click to Edit)
GPRM-0	0x0501 (1281) Pseudo-Random Number
GPRM-1	0x0031 (49) Scaled Pseudo-Random Number
GPRM-2	0x0000 (0) Temporary use
GPRM-3	0x0000 (0) Play log, clips 1-16
GPRM-4	0x0040 (64) Play log, clips 17-32
GPRM-5	0x0000 (0) Play log, clips 33-48
GPRM-6	0x0002 (2) Play log, clips 49-64
GPRM-7	0x0008 (8) Play log, clips 65-80
GPRM-8	0x0000 (0) Play log, clips 81-96
GPRM-9	0x0000 (0) Play log, clips 97-112
GPRM-10	0x0000 (0)
Return Menu Node	0x0078 (120)
DVD Lab Temp	0x0000 (0)
Playlist Item	0x0000 (0)

DVD Navigation Log		(Click here to save)
0:00:59.67:	GPRM-6 set to 0x0002	(2)
0:00:59.67:	GPRM-1 set to 0x0031	(49)
0:00:59.67:	GPRM-0 set to 0x0501	(1281)
0:00:59.68:	Chapter 1: 0:00:04:08 ends at 0:00:04:08	
0:00:59.68:	Slide display on	

Once you click on whatever you've set up to capture the count, GPRM2 should be zero, and GPRM0 should have the pseudo-random number in it. GPRM1 will have the scaled value. As clips are randomly played, you should see the value in GPRM0 range from 1 to 2046. GPRM1 should range between 0 and one less than the maximum value you selected.

At the same time, the circled value in the window below should show the clip number that corresponds to the value in register 1. Remember that a 0 in register 1 should correspond to your first clip, and so on.



Someone once asked if it were possible to tell what was playing. I wasn't sure at the time, but I've since learned that the identity of the clip is shown near the bottom of the window.

If you have implemented skewing, you should see the record of what has played in GPRM3 (assuming you have less than 16 clips) or GPRM3-9 (if you provide for a full 112 clips).

In the first case, GPRM3 should increase in value until it reaches 32767 (all ones). When this happens, all clips should have played, and GPRM3 should reset to whatever its preset value is.

In the second case, all registers, GPRM3-GPRM9 should increase in value until they reach 32767. When all registers equal this value, all clips should have played, and the registers should reset to their initial value.

Armed with this information, it should be possible to find where malfunctions occur. I do not claim that all of these algorithms are foolproof, and that you will never see a malfunction. I do claim that the basic pseudo-random algorithm is the most robust, followed by the addition of a seed, followed by basic skewing, followed by the more elaborate version of skewing, which is an alpha state.

I do claim that the one quickest ways to get robust algorithms is to try these, submit problems, and incorporate corrections. Anyone who saw the earlier versions of these algorithms can see the fruits of this process.



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