Rattle

Version 1.0

by Craig Boyd
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Overview

Rattle (as in "Shake Rattle 'n Roll") allocates and deallocates blocks of memory in a random fashion, stress-testing other running Windows applications by subjecting them to adverse and quickly-changing memory conditions.

You can tell Rattle how many memory blocks to allocate, how large each block should be, and how often each block should be allocated. With Rattle you will quickly determine how well your app handles a fragmented heap and low memory situations.

License Agreement and Warranty

Although this software is distributed free of charge, it is not public domain. You (and you alone) may use Rattle on any computer where you have installed a legitimate copy of Microsoft Windows version 3.0 or higher. (It wouldn't do you much good anywhere else, would it?) You may make copies for backup purposes to protect your investment. You may not sell Rattle to anyone, although you may give unmodified copies of the self-extracting archive file RATTLE10.COM to your friends or upload it to bulletin boards. Under no circumstances may you charge anyone for a copy of Rattle, although you are allowed to recoup distribution expenses (i.e., the cost of floppy disks).

Rattle has been thoroughly tested on a variety of hardware platforms. However, I make no guarantee that it will work with a particular hardware configuration. If you have any compatibility problems, please contact me and I'll do my best to rectify the situation.

If you obtained Rattle on a floppy disk directly from the author (available for $10), then that disk is warranted to be free from defects for a period of 90 days from date of purchase. If your disk is found to be defective within the 90-day period, then the author shall exchange the defective disk for a new one. This warranty does not extend to copies of Rattle obtained on disk from any other source.

There are no other warranties, express or implied, and the author shall not be held liable for any damages, financial, material, or otherwise, that may result from the use, misuse, or abuse of this software.

Acknowledgments

Thanks to the wizards at Borland International for a great Windows programming

environment and for helping me find my way through the sometimes murky world of Windows programming. Special thanks to Danny Thorpe and Pat Ritchey for answering my many questions.

Thanks also to my wife, Sherry, for putting up with the late nights at the keyboard and the never ending parade of software upgrades. ("But, honey, I really *need* this update!")

System Requirements

Rattle requires a computer system capable of running Microsoft Windows version 3.0 or higher. Compiling the source code requires Borland's Turbo Pascal for Windows version 1.0 or higher. The compiled program requires 30k of free disk space. The source files and documentation occupy an additional 45k.

Contacting the Author

I'd love to hear what you think of this program. You may contact me in several ways:

CompuServe This is the fastest way to contact me. My CIS ID number is 72676,3536.

GEnie My GEnie mail address is C.BOYD1.

U.S. Mail Write to Craig Boyd, 7718 Harmon Drive, Little Rock, Arkansas 72207.

Compiling Rattle

The Rattle source files are distributed in the self-extracting archive file RATTLE10.COM. The archive includes the following files:

RATTLE.H	Header file for resource file.
RATTLE.PAS	Turbo Pascal source file.
RATTLE.RC	Resource script file.
RATTLE.RES	Compiled resource file.
RATTLE.WRI	This file.
RATTLE1.ICO	Icon file (monochrome and color images).
RATTLE2.ICO	Icon file (monochrome and color images).

Rattle may be compiled from DOS using the command line version of the Turbo Pascal for Windows compiler (TPCW.EXE), or from within Windows using the TPW Integrated Development Environment (TPW.EXE).

To compile Rattle from the DOS command line, enter the following commands:

```
C\TPW\>rc -r rattle (to recompile the resource file, if needed)
C\TPW\>tpcw rattle(to create RATTLE.EXE)
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To compile Rattle from the TPW IDE, run TPW, then select File|Open and load RATTLE.PAS. Then press Alt+F9 or select Compile|Compile to create RATTLE.EXE.

Running Rattle

Rattle may be run by selecting the Program Manager's File|Run command, then entering the complete path name of the program (e.g., "C:\TPW\RATTLE.EXE"). You can also add RATTLE.EXE to a Program Manager group, and launch it by simply double-clicking on its icon.

Rattle's main window is a dialog box, featuring several edit controls, checkboxes, and buttons. Click the Shake It! button to start Rattle. The Stop It! button stops Rattle and frees all memory blocks. The Reset button sets all parameters to their default start-up values. The Save Settings button stores the current settings in WIN.INI. (The current settings will become the new defaults.) Click the Quit button to terminate the program.

Three values control how Rattle will operate:

Block Size
This is the size, in bytes, of each memory block. A block is allocated after each timer tick (as specified by the Timer Frequency, defined below). If there is not enough memory to allocate the memory block, then no memory is allocated. The default block size is 8192 bytes.

Block Count
This is the total number of memory blocks Rattle will allocate. After this number of memory blocks has been reached, a block is chosen at random and released. Another block will be allocated to take its place on the next timer tick. The default block count is 20.

Timer Frequency
This is the period, in seconds, between each memory block allocation. For example, if the timer frequency is set to 5 seconds, the first block is allocated after 5 seconds, the second after 10 seconds, the third after 15 seconds, and so on. A timer frequency of zero is treated as a special case (see below). The default timer frequency is 5 seconds.

Here's an example of how Rattle works. If the Block Size is set to 1000, the Block Count to 5, and the Timer Frequency to 5 seconds, here's what happens after you click on Shake It!:

After a period of...	Rattle will...
5 seconds	allocate 1 memory block of 1000 bytes.
10 seconds	allocate another memory block, for a total of 2000 bytes.
15 seconds	allocate a third memory block (3000 bytes).
20 seconds	allocate a forth memory block (4000 bytes).
25 seconds	allocate a fifth memory block (5000 bytes).
30 seconds	choose a memory block at random and release it. (Back to

4000 bytes.)

35 seconds	allocate another memory block. (Back up to 5000 bytes.)
40 seconds	release a memory block.
45 seconds	allocate another memory block.

Once the maximum number of memory blocks is reached (as specified by Block Count) the cycle of releasing a block and allocating another block will repeat until you stop Rattle by clicking on Stop It! or terminate the program.

If you simply want to grab a bunch of memory and hold on to it, set the Timer Frequency to zero before clicking Start It!. Rattle will immediately allocate the full amount of memory specified by the Block Size and Block Count parameters. Rattle will hold onto this memory until you stop Rattle by clicking the Stop It! button or terminate the program.

You can see how much memory Rattle has consumed by selecting the About... option from the System menu.

Program Options

Rattle has four options, implemented as check boxes:

Sound

If this box is checked, Rattle will beep each time a memory block is allocated. By default, this option is off.

Minimize

If this box is checked, the Rattle window will automatically be minimized after clicking on Shake It!. This option is on by default.

Animate Icon

If this box is checked, and the Rattle window is minimized, the icon will be changed each time a memory block is allocated. This option is on by default.

Use Spacers

If this box is checked, Rattle will allocate a temporary spacer memory block before allocating an additional memory block. The spacer block is then released. By default, the spacer block is one-fourth the size of the normal block size. Using this option causes extensive heap fragmentation. This option is ignored if the Timer Frequency is set to zero. By default, this option is off.

Error Messages

Invalid block size

The memory block size you have selected is less than 1 or is not a valid numeric value. The block size must be a whole number greater than or equal to 1.

Invalid block count

The block count you have selected is less than 1 or is not a valid numeric value.

The block count must be a whole number greater than or equal to 1.

Invalid timer frequency

The timer frequency you have selected is less than 0 or is not a valid numeric value. The timer frequency must be a whole number greater than or equal to 0.

No free timers

Windows has a limited number of timers available. This error message indicates that all timers are already in use. Close another app which is using a timer and try to start Rattle again.