

HOW TO USE FULL 4GB RAM IN WINDOWS 7 32 BIT (GAVOTTE RAMDISK IN WINDOWS 7)

Introduction

I was using Gavotte's edition of the Windows RAMDisk driver for a while in my windows XP installation for a while already and my results were so far really good. Using the RAMDisk driver I was able to use my full 4GB RAM in my Windows 32 Bit environment.

Question is actually: How does it work? If Microsoft limits Windows to 3GB RAM how can this be extended?

Answer: Depending on the used hardware and BIOS configuration the non-usable memory between 3GB and 4GB (this is a area for reserved addresses for physical devices) is remapped to the area above 4GB.

Windows XP/Vista/7 32Bit editions are limited to 4GB RAM addresses so the memory above 4GB is just "unused".

The Gavotte RAMDisk is able to set the RAMDisk in the area above 4GB memory addresses and can enable the usage of this area for other purposes. I use the RAMDisk for setting my page file to this area but you can also use it for setting the TEMP folder or other stuff there.

It is just important to know that the RAMDisk is not persistent - so don't store any important stuff there - every reboot or power cycle the content is lost - so temporary files can be stored very good at this location.

I came across the RAMDisk driver when reading the famous German computer magazine c't which published an article in edition 7/2009, page 78 called "Ghost-Memory" (translated from German)

Installation in of Gavotte RAMDisk in Windows 7

Step 1: Download RAMDisk Package

First you need to download the RAMDisk driver from a suitable location. Use Google to find a file called...

Gavotte_RAMDisk_1.0.4096.5_200811130.7z

or

Gavotte_RAMDisk_1.0.4096.5_200811130.zip

...unzip the content to a suitable folder.

Step 2: Enforce PAE mode in Windows 7

Open a command line with elevated right (=run as administrator) and type the command ...
bcdedit /set pae ForceEnable

Run bcdedit and validate the result. "pae" should be listed as shows below:

```
Administrator: Command Prompt
Microsoft Windows [Version 6.1.7600]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Windows\system32>bcdedit /set pae ForceEnable
The operation completed successfully.

C:\Windows\system32>bcdedit

Windows Boot Manager
-----
identifier                <bootmgr>
device                    partition=\Device\HarddiskVolume1
description                Windows Boot Manager
locale                    en-US
inherit                    <globalsettings>
default                    <current>
resumeobject                <8cba71b4-097d-11df-ac6f-ecd09f321537>
displayorder                <current>
toolsdisplayorder          <memdiag>
timeout                    30

Windows Boot Loader
-----
identifier                <current>
device                    partition=C:
path                        \Windows\system32\winload.exe
description                Windows 7
locale                    en-US
inherit                    <bootloadersettings>
recoverysequence            <8cba71b6-097d-11df-ac6f-ecd09f321537>
recoveryenabled            Yes
osdevice                    partition=C:
systemroot                \Windows
resumeobject                <8cba71b4-097d-11df-ac6f-ecd09f321537>
nx                          OptIn
pae                          ForceEnable

C:\Windows\system32>
```

Step 3: Reboot

Reboot your PC to have the PAE mode effective.

Step 4: Configure PAE mode for RAMDisk

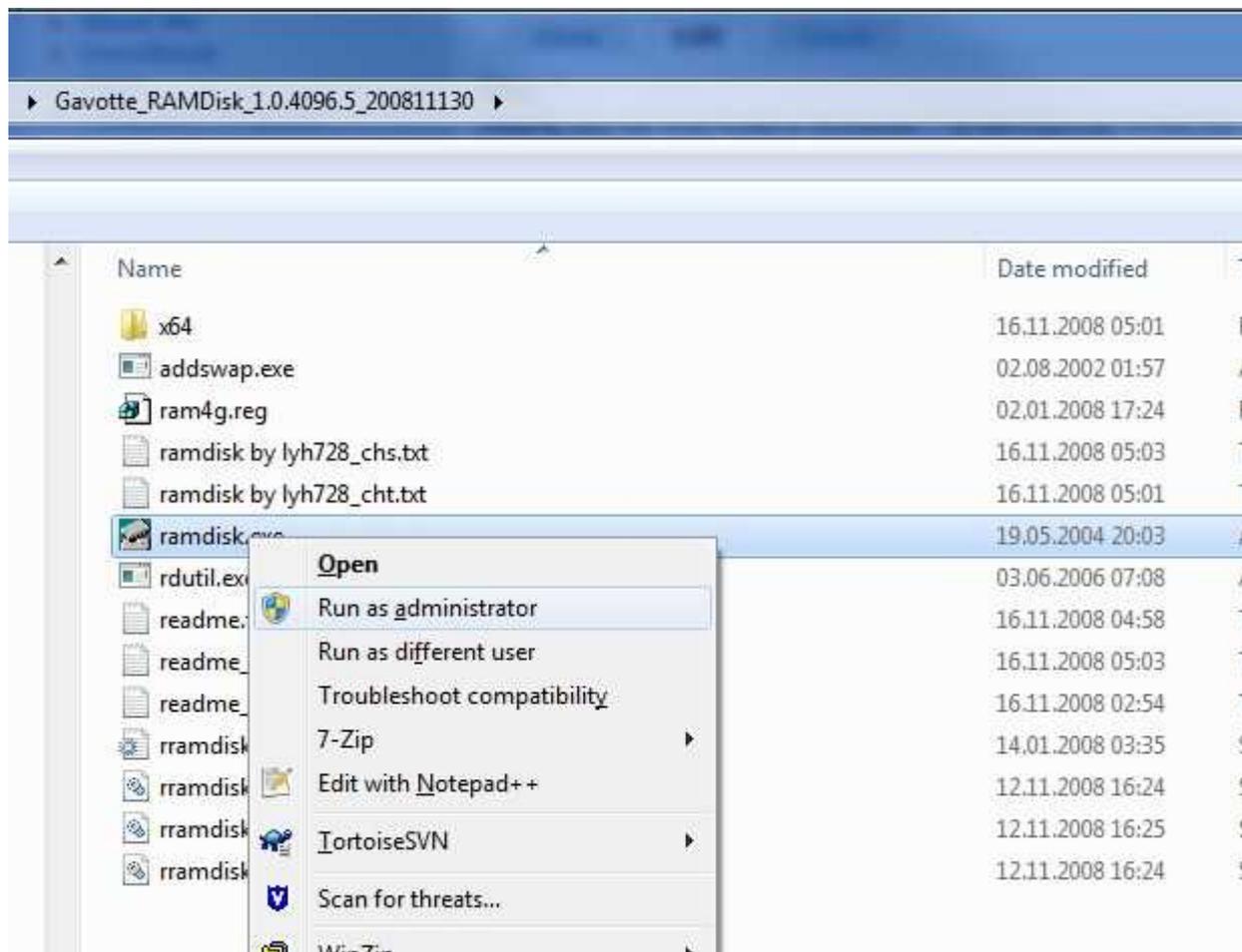
In explorer locate the file "ram4g.reg" within the extracted set of files from the RAMDisk, double click the file to add the registry settings. The content of the REG file should look like this:

Windows Registry Editor Version 5.00

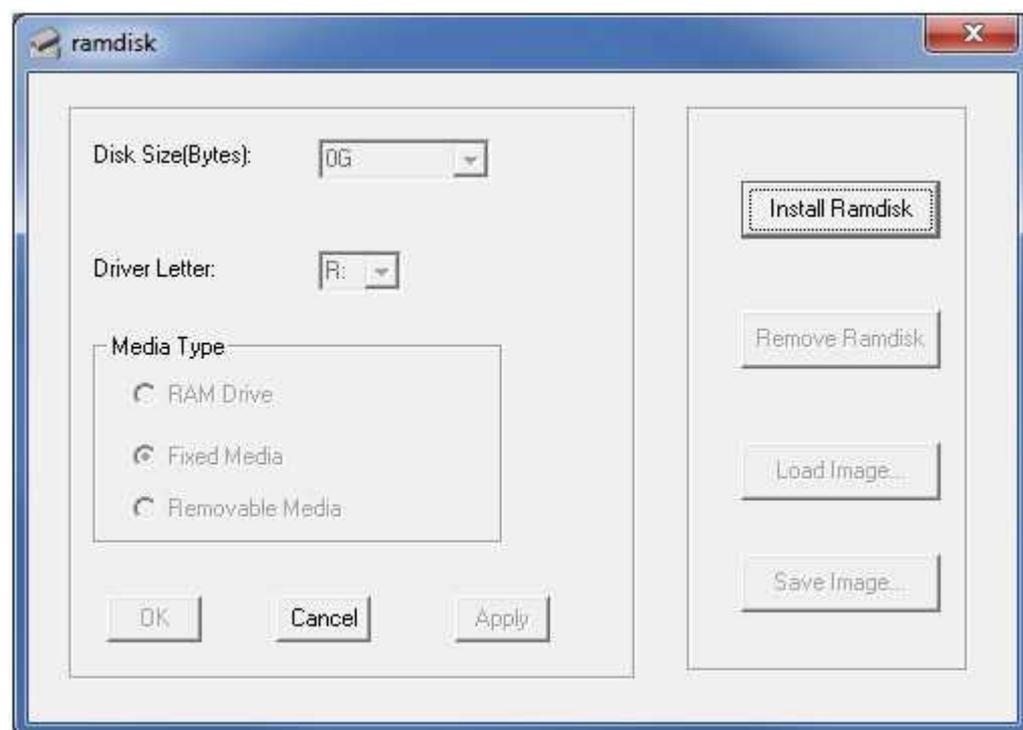
```
[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\RRamdisk\Parameters]
"UsePAE"=dword:00000001
```

Step 5: Install RAMDisk

Navigate to the folder where the RAMDisk files have been extracted and start "ramdisk.exe" with administrator permissions.



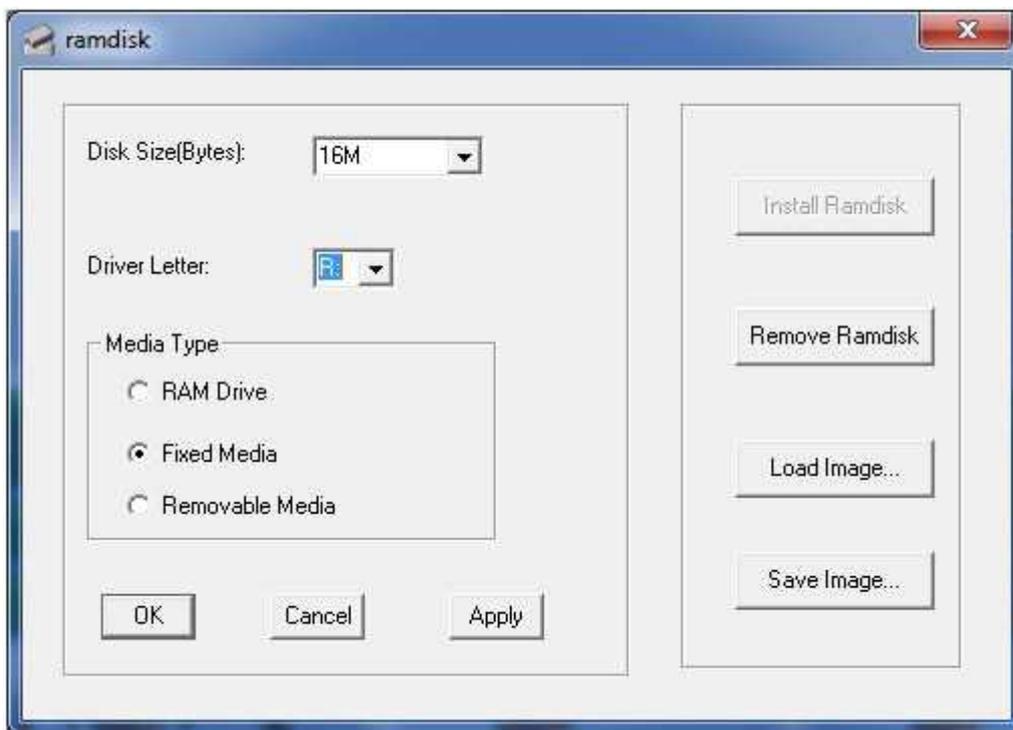
In the GUI of ramdisk.exe click on "Install Ramdisk".



After you clicked the button there will be a warning displayed by Windows Security to validate if you really would like to install the RAMDisk, click on "Install this driver software anyway".



Then... you need to wait a bit, on my box it took ~30 seconds to complete the installation. If completed the GUI should display something like:



Also you'll notice that a drive "R:\\" is now available in your Windows Explorer using the size of your missing memory between 3GB and 4GB.

Step 6: Reboot (again)

Reboot (again) to validate that RAMDisk is installed correctly. After reboot the RAMDisk should be displayed in Explorer as drive R:\ again.

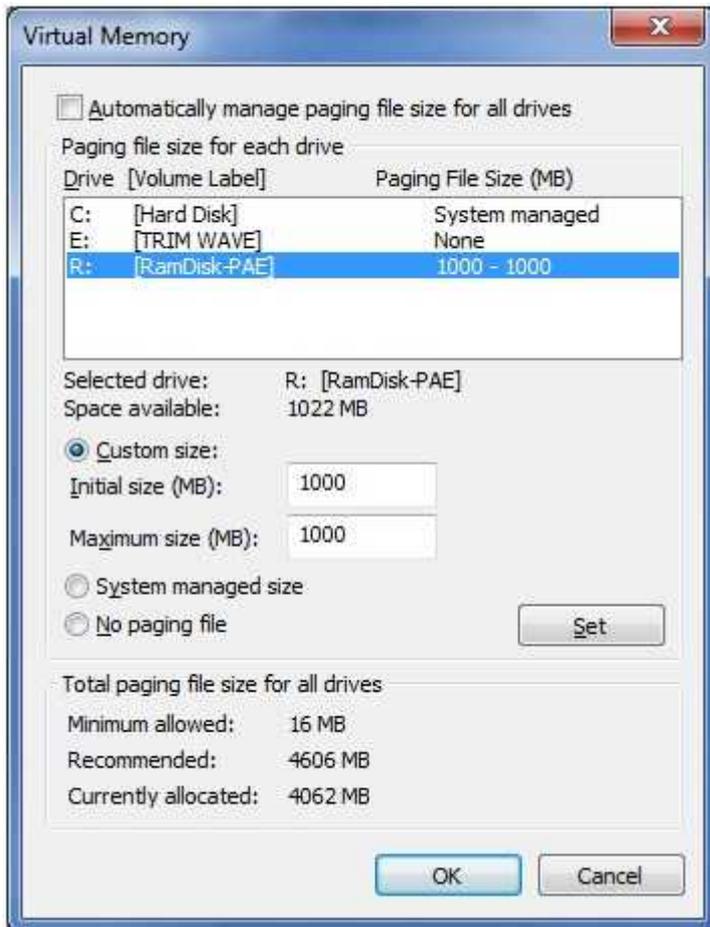
Step 7: Enjoy

Now you can be sure to be able to use the RAMDisk. I personally use it as swap space.

To set it up as swap space (swapping from RAM to RAM) you...

1. Right click on "Computer" in Windows Explorer
2. pick "Properties"
3. then use the menu on the left for "Advanced System Settings"
4. in the following dialog use the tab "Advanced"

5. in the group "Performance" click the "Settings..." button
6. on the following dialog use tab "Advanced"
7. in the group "Virtual Memory" click on "Change..."
8. in the following dialog (seems very advanced at this step already :-) unselect "Automatically manage paging file size for all drives" checkbox.
9. Select your RAMDisk drive in the list box
10. Select "Custom Size"
11. Enter e.g. 1000 into "Initial size" box
12. Enter e.g. 1000 into "Maximum size" box (whereas my RAMDisk had space of 1022MB available)
13. Click on "Set" button
14. Close the dialog with "OK"
15. Close the dialog with "OK"
16. Accept to reboot



After reboot you can enjoy having a computer swapping from RAM to RAM.

Attachment	Size
Gavotte_RAMDisk_1.0.4096.5_200811130.7z	160.59 KB

http://www.jensscheffler.de/sites/default/files/Gavotte_RAMDisk_1.0.4096.5_200811130.7z