FreeMem Standard
Contents

How this program works

Help for the individual pages of **FreeMem Standard**
- Free Memory
- Statistics
- Startup

Command Line Interface

FreeMem Professional compared to FreeMem Standard

FreeMem Information

FreeMem Standard
Compared to FreeMem Professional

Features of FreeMem Standard
- <u>Free up any amount of RAM</u>
- <u>Retry counter</u>
- <u>Cool statistics to verify the results</u>
- <u>Information in the Window-Title</u>
- <u>Configurable Auto-Start option with free-up</u>

Features of FreeMem Professional
- ***All features of FreeMem Standard***
- Optional tray icon to not was space on the task-bar
- Fast Free-Up option from the tray icon
- Automatic Free-Up if a critical amount of free RAM is reached
- Regular Free-Ups to remind Windows to do its work
- Fast turn-off of background operations

Regular free-ups are essential for a good-working Windows. It is very important to remind Windows to do its memory management job. Unfortunately Windows is not that good on this, so a regular free-up is a must have.

The main new function is the Free-Up if a specific amount of free RAM is reached. If the PC is only having 200KB of free RAM and this is a very common situation while browsing the web, performance is remarkably degraded. **FreeMem Professional** detects this situation and frees up some RAM.

Many people wish a tray-icon for continuous operation of *FreeMem Standard*. We first thought that this feature was not a good idea, but we implemented it anyway (so many people just can't be wrong) in **FreeMem Professional**. And after having it finished, we really liked it. We are always using the program now in tray-mode.

FreeMem Standard
FreeMem Information

FreeMem Standard is the new version of the popular *Free Memory Tool.* It is designed for FREE use of everybody. You will get a very good idea of what the *FreeMem* products can do for you.

Update Information:
You can check **http://www.meikel.com** for the latest updates of our software.

FreeMem Professional is distributed as Shareware. You can use and evaluate it risk-free for 30 days. Check our homepage at **http://www.meikel.com** for the latest version of **FreeMem Professional**. <u>More Information...</u>

FreeMem Standard
Page Free Memory

You can choose the amount of RAM to free. It is important to not choose too much here as this will greatly increase your swapfile size and will take a long time. Only a good chosen amount of RAM ensures fast operation and performance enhancements. It is usually a good idea to free up **half** the RAM you have.

An important options is the number of times the tool works at max.

Please read <u>How this Program works</u> to understand how these options work together.

FreeMem Standard
How this program works

A word on Window's memory management

Microsoft's Windows Operating Systems Windows95 and WindowsNT have a sophisticated memory management. It is possible for applications to use more RAM than a PC really has. This is important to enable the user to run many programs at the same time. Currently unused areas of RAM are swapped out to the harddisk. By doing this the currently running application has access to all resources it needs.

Another important aspect is that Windows holds parts of the harddisk as cache inside RAM. This really speeds up operation as the harddisk is very slow compared to RAM. It is of course not possible to hold the whole harddisk in memory, but Windows tries to figure out which files the user needs and holds them (or parts of them) in RAM.

What's going wrong

There are four things that go wrong and make the memory management fail.

- **Program Errors**
  Many applications today have programming errors. The Operating System itself has programming errors. Many people think that it is impossible to make programs without errors. Most errors are no problem. A user never sees them. Sometimes one of these errors leaves some amount of memory allocated, even if it is not needed any more. This is very bad as RAM is a valuable resource and this resource is wasted. However Windows has no chance to detect these errors and must still assume that all this RAM is needed somewhen.

- **Large Libraries**
  Many programs use large libraries. This makes it easy for companies to do cool programs as they don't have to invent the wheel again anytime they want to program a program. The program FreeMem Professional uses a library, too. Some of these libraries are very large and consume a notable amount of memory. All OLE libraries fall into this category. Unfortunately the memory is used, even if the program doesn't really need it. Sometimes a library is loaded, just to provide 2 or 3 functions. However the library reserves RAM as if the program would use all 100 functions.

- **File Caching**
  As stated above, file caching is an important thing to do. Without it the PC would be extremely slow. However Windows Operating Systems are not smart enough to really detect which files are necessary to hold in RAM and which not. If a file is in RAM, because an application has needed it, Windows holds the file in RAM for a while, even if it is not needed any more. Especially after large copy operations, large parts of RAM are full with cached files, even if most of the files will not be accessed for the next 2 days. Assume a PC has 32MB of RAM and about 20MB are used to cache files from the harddisk. This makes the PC have only 12MB left to applications and the operating system. Is this why people buy 32MB instead of 12MB? This problem is especially true with WindowsNT 4.0. With Windows95 the user has a possibility to control the file cache size.

- **Background Programs**
  Windows is capable of running many programs at the same time. This is great for the user. This also enables the existence of some tools that work constantly in the background and provide useful services. FreeMem Professional is one of these tools. However there are programs that provide unnecessary background services. These tools just consume RAM and provide no service. It is important to notice that FreeMem Professional reduces the amount of RAM such programs need. One example for an unnecessary background program is „Microsoft Office Fast Start". This program just loads a lot of libraries and does really nothing. This could make the applications from Microsoft Office load a bit faster, because the libraries are already in RAM, but the effect is nullified the moment the libraries are swapped out to disk.

What to do

There is some easy thing one can do to solve the problems stated above. Just run a large application. This will allocate a lot of RAM and cause all the unused parts of RAM to be written to the swap file. All unused parts of RAM are now on the harddisk and are not any more wasting a valuable resource. However the large application is now blocking all the RAM and closing the application does not guarantee that the space is recovered.

FreeMem Standard

FreeMem Standard is the first tool to really solve the problems of Windows memory management. By allocating a large amount of RAM all unneeded parts of RAM are written to the swap file. *FreeMem Standard* gives back the RAM to Windows immediately. This guarantees that the valuable resource RAM is available. The following problems are solved with FreeMem Standard

- Wasted RAM is written to the harddisk
- File Cache Size is minimized
- Loaded Libraries are written to the harddisk (as long as they are not currently in use)

FreeMem Professional

FreeMem Professional is the same basic program as *FreeMemory Standard*, but offers a lot more features to ensure that RAM is used to the best extend and RAM is never wasted. **FreeMem Professional** has capabilities to free up RAM if all RAM is used and enables regular free ups to remind Windows memory management to do its work. You can read a more detailed comparison between *FreeMem Standard* and **FreeMem Professional**.

How FreeMem works

If one clicks on a specific amount of RAM (e.g. 12MB) and presses the button **Allocate and Free**, the tool goes into operation. The amount of memory is allocated and filled with dummy data. It is necessary to fill the RAM with data as Windows is smart enough to ignore allocations which are never used. The memory is then immediately freed and returned to windows. The tool checks if the requested success was reached. It is possible that Windows swaps out parts of the RAM FreeMem Professional has allocated and not all the other stuff. If the target was not reached (or nearly reached), the tool repeats the operation. It is possible that the wanted amount of free RAM is never reached. Some background programs can prevent this. To avoid FreeMem Professional to continuously block RAM and waste CPU time, the user can specify the maximum number of tries the tool undertakes to free up RAM. You can see in the title of the window if the tool is already in a retry loop. A number is given in brackets which specifies the current loop number. More than 20 loops are not allowed.

FreeMem Standard
Page Statistics

The large chart shows how the free RAM on your PC comes and goes over time. You can specify a refresh rate which is also the refresh rate for the title-information and the tray icon. You can turn the information in the title on and off by using the appropriate option. This statistics is very important for you to verify the results of **FreeMem Standard**.

This information has nothing to do with the amount of RAM installed on your PC. Its only that there can never be more free RAM than RAM installed on your PC. A typical 32MB machine has about 2 or 3 MB free RAM left after boot. I can only imagine the situation on PCs with less RAM but it should be much worse. Having 64MB already boots. At work, I have a laptop with 64MB RAM and it is optimized to have about 30MB free after boot. Unfortunately I can't get my hands on machines with even more RAM.

If you are not yet having 32MB of RAM, consider your next hardware to be some RAM chips. It really pays off. RAM is much more important than the MHz of your CPU, even if computer stores only advertise with the CPU. Don't get fooled by the marketing of Intel or its competition.

FreeMem Standard
Page StartUp

On this page you can easily specify if the program should run automatically with Windows. You can specify the amount of RAM to free up at boot-time. In addition you can choose a custom retry count for this operation and a delay time.

Read How this Program Works to understand what the retry count means.

What is the Delay?
Windows has to load a lot of stuff during startup. **FreeMem Standard** is only one of the programs it loads. Unfortunately **FreeMem Standard** has no control if its loaded first or last. It is not a good idea to free up large amounts of RAM while Windows is still loading, so you should specify a delay time to ensure that loading has already finished, before **FreeMem Standard** starts freeing-up.

FreeMem Standard
Command Line Parameters

Command Line Parameters were invented with *Free Memory Tool*. They are not that important any more. Maybe you gain some extra productivity using them.

Description of available Command Line Parameters

/F<MB>
Specify the amount of RAM you want to free in MBs. An example of this option is /F10 which would free up 10 MB. If you do not specify this parameter, half of your RAM is freed.

/T<retry count>
Specify the retry count used in the operation. An example of this option is /T5 which would try 5 times to free up the RAM. If you do not specify this parameter, it defaults to 4 times.

/D<seconds>
Specify the delay before executing the operation in seconds. An example of this options is /D10 which would wait 10 seconds before freeing up RAM. If you do not specify this parameter, it defaults to 5 seconds.

/C
Specify this parameter, if you want **FreeMem Standard** to close after freeing up. This parameter has no effect, if **FreeMem Standard** is already running.

Please read How this program works to understand how the retry counter works.

An example command line could look like:
C:\Your Path\freemem.exe /F12 /D20 /T5
which would free up 12 MB with a retry count of 5 after waiting for 20 seconds.

If you specify an unknown parameter, it is ignored. To just use the defaults for every parameter, just use the word *auto* as command line parameter.

A special parameter is *StartUp* which is used internally to start FreeMem Professional with Windows. This parameter takes the values you specified on the Startup page.