


2^P-1
May Be Prime!

Great Internet Mersenne Prime Search

GIMPS

Finding World Record Primes Since 1996



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Free Mersenne Prime Search Software

Prime95 Version 30.8 build 17

You are using the mersenne.org HTTPS mirror

Any modern personal computer with Windows, Mac OS X, Linux, or FreeBSD can participate. The [How it Works](#) page answers many questions you may have before downloading the software. You must also agree to the [GIMPS free software license](#).

Latest version: 30.8 build 17 - see the latest [WhatsNew.txt](#) file for a full list of changes. Recent changes include:

- Huge improvements to stage 2 of P-1 when lots of memory is available.
- Warning: upgrading in the middle of P-1 stage 2 will restart P-1 stage 2 from scratch

[Older version history](#)

- Download Software
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Setup Instructions for New Users

Joining GIMPS is usually as simple as downloading and running the program, answering a few questions, and the program does the rest.

There are **cash awards** for discovering a new Mersenne prime!

- If you have not done so, [create your UserID](#). It's optional, but required to [check your account details](#), [computer status and performance statistics](#) and to assign computers to your user ID.
- Download the appropriate free program for your OS (see below for [GPU software](#)) and proceed to Step 3:

Operating System	Version	Released	Size	Download	Notes / Checksums
Windows: 64-bit	30.8b17	2022-09-28	10.0MB	p95v308b17.win64.zip	MDS: 0f89cd1c739b7459cdf3c867a18997c8 SHA1: 1e05e5bb97918078ad98f754c0b2c9529a241d86 SHA256: 208ce041d9e7f4be04172bb3211b10831ec465be51ff4de7f1ad93a3c1a5124
Windows: 32-bit	30.8b15	2022-05-06	8.4MB	p95v308b15.win32.zip	MDS: bbebf5dc825671f9a3070ad835b86fe SHA1: daa707628a7c08ae30d116d0b298c0cc0bba095c SHA256: b44c382385fbc0a3740e525c73a22c0b30bc083c213918fe44b5f383c4f16591
Linux: 64-bit	30.8b17	2022-09-28	6.9MB	p95v308b17.linux64.tar.gz	MDS: 0ec3d1ad85227317e9595ec4d1ec43b6 SHA1: 77d1d681564b74fe0570e701fc53152ff5d2191 SHA256: 5180c3843d2b5a7c7de4aa5393c13171b0e709e377c01ca44154608f498bec7
Linux: 32-bit	30.8b15	2022-05-06	5.7MB	p95v308b15.linux32.tar.gz	MDS: d2cd4e91cf4289c0691ce4bb75326dd0 SHA1: 268130a5f5598b8e9780877f3b06b09ac3d7b9f2 SHA256: 183ae2f1072782cd39c45fb13f3ff2d3c7b724ba7cc3d0cb32ad8d1ca1f653
Mac OS X	30.8b15	2022-07-28	4.7MB	p95v308b15.MacOSX.tar.gz	Command line version, requires Intel CPU, Mac OS X 10.9 (Mavericks) or later MDS: ab4ce4d1004d0f27b3e06e472ee8237d SHA1: 330acab5c1a078270eae05301f43cfe9600958 SHA256: 3a87122db12395c880f370796e8958776d7b8bd2ca07af68fe2e4528ebdf68fd
FreeBSD 11+: 64-bit	30.7b9	2021-11-15	7.1MB	p95v307b9.FreeBSD11-64.tar.gz	Requires FreeBSD 11.0 MDS: a88718f5d985c3a0e0f76323969ffcaf SHA1: 767e890f0914e5a01b0ee0c0df9b4624408caf4a SHA256: 750a36bce5d33db07c6765ea454d12a25aea0b967b99642d3847cb87c7e844a5
Windows Service: 64-bit	30.8b15	2022-05-06	8.3MB	p95v308b15.win64.service.zip	This is for administrators that want the extra security of running a traditional GUI-less service. You will still need to download the standard windows executable to configure the client. This program is for Windows Server experts only. MDS: fc4b5842e086c76fa170d1ff2407f8 SHA1: 370af5d2d2185876a08b0b0e6ee37e60d4e2a2 SHA256: 46f2733eea207783900da3611b27d96764cb45aeb374f2c2ad01b564367fbcd
Windows Service: 32-bit	30.8b15	2022-05-06	7.1MB	p95v308b15.win32.service.zip	This is for administrators that want the extra security of running a traditional GUI-less service. You will still need to download the standard windows executable to configure the client. This program is for Windows Server experts only. MDS: 4032142a08adeaef678b08b0d05fc1f27 SHA1: 29a23c0b0c7097e7c523740e30602951733405f SHA256: 33c873809d8491093f4640b722ceddaa7148bc99f0ba08a92551597059e7f2
Source code	30.8b15	2022-05-06	49.0MB	p95v308b15.source.zip	for Windows, Linux, FreeBSD, and Mac OS X MDS: e2112da9e0807915a3a786758d81cba SHA1: b3ee23e73181a304a24eeef44ed70bd89d10f4e SHA256: 080628a94ad1d5d1a1121974b7cb78a03e4f1510943852cd04c88b6ac39f

GPU Software

Some Mersenne-related software has been written for NVIDIA and AMD GPUs, including:

- primality test (PRP): [gpuowl](#)
- trial-factoring (TF): [mfaktc](#) (NVIDIA) / [mfakto](#) (AMD)

If you have a recent discrete videocard powered by an AMD or NVIDIA GPU, it's potentially more powerful than your CPU at prime-testing (or factoring) Mersenne numbers.

Visit the [Mersenne GPU Computing Forum](#) for more information.

Legacy Operating Systems

Mac OS X, GUI version	29.8b7	2020-03-19	5.0MB	p95v298b7.MacOSX.tar.gz	Requires Intel CPU, Mac OS X 10.9 (Mavericks) or later MDS: 5a110a0a5210fd10d708da0e9ff43cf SHA1: 5a9305f45da0d09060520176f9abaead7c22d35e SHA256: 3a0e228ea35b096824163c7f5ab0e21502a33ae647752de3a5a00f88fc7c52e
Mac OS X pre-Mavericks	27.9	2012-12-12	5.1MB	p95v279.MacOSX.zip	Requires Mac OS X 10.3 to 10.8 and an Intel CPU. MDS: 0398a2ff33da7082927482d02e23f59 SHA1: 5f0829f0ba4ff5d0bab35072519cd80ecce576c1 SHA256: c44e3bda58d1368ec58a0eff47ccdf5bdc5d31f669e2761da4737d5568d8
FreeBSD 10: 64-bit	28.7	2015-08-10	5.3MB	p95v287.FreeBSD10-64.tar.gz	Requires FreeBSD 10.0 MDS: 5dd21b471946fcd4b458a9fa50fe718b SHA1: 5143e7e355f8fbc0e5b3629cc9cd0d4e9bd4592 SHA256: 0a04bb01524e7c18edce5081f57e902b3ce9f82cd0be39aae8bfaaf95ab416
FreeBSD 8: 64-bit	27.9	2012-12-12	4.5MB	p95v279.FreeBSD64.tar.gz	Requires FreeBSD 8.0. May work on later versions. MDS: c6b1c84a79bb1b2e8366a01d0ea0087c SHA1: 0f2972ed0728a017b3bfe7da5cb7fdad7ed785c SHA256: 5ab9feddeb53fca9d0684119fae79c271de3d85a4dd3cf31fd26ab97ff71c85a
FreeBSD 7: 32-bit	26.6	2011-04-08	4.0MB	mprime266-FreeBSD.tar.gz	Requires FreeBSD 7.0. May work on later versions. MDS: d7e78a580bc7ebbd0b57ff68835739 SHA1: b2832786ea4887404eb07357992901ce0dd3fe08 SHA256: d4c2c044cf45311d07f2c41574f59a0519c989fde0ca723505da12b2ff1fd
Windows XP: 32-bit	29.8b6	2019-08-18	5.4MB	p95v298b6.win32.zip	MDS: 4f7d1cc7984d5d9c2b26c8c00b6470a9 SHA1: 54dd8f9b4692d7a878626ac993562b83cb5587fb SHA256: cdd32b4c358869d3f58aa30bc67d9e88a5a69506002f864adac3c477c9202a
non-x86 OS					Unix and non-x86 users should check out Ernst Mayer's Mlucas page .

3. Create a directory and decompress the file you just downloaded. Windows 10, 8, 7, Vista, and XP have built-in unzip features. Other Windows users can choose from a variety of decompression programs. We use [7-zip](#). Linux and FreeBSD users should use the standard tar and gzip decompression utilities.

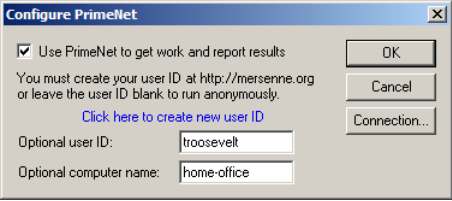
4. Start the program! Linux and FreeBSD users should run the program from the command line with a -m switch, i.e.

```
./mprime -m
```

Enter your optional userID created on the website in Step 1, and optionally name your computer. We recommend Windows users select **Options » Start at Bootup** or **Start at Logon**.

That's all you need to do! The program contacts a central server called PrimeNet to get some work to do. Usually the program and PrimeNet know the best work to assign, but it's up to you! You can administer your account and computers on your userID's [account page](#). Once you complete a workunit you can track your standings on the [competitive stats pages](#) the server updates every hour (see Top Producers in the menu, left, for more stats). You can monitor each of your computers' progress, even remote-control the work assignments they request using your userID's [CPUs page](#)!

Linux and FreeBSD versions can also be set up to run every time you restart your computer.
Ask for help at [the Mersenne Forum](#).



CPU Stress / Torture Testing

Prime95 has been a popular choice for stress / torture testing a CPU since its introduction, especially with overclockers and system builders. Since the software makes heavy use of the processor's integer and floating point instructions, it feeds the processor a consistent and verifiable workload to test the stability of the CPU and the L1/L2/L3 processor cache. Additionally, it uses all of the cores of a multi-CPU / multi-core system to ensure a high-load stress test environment.

From the most recent "[stress.txt](#)" file included in the download:

Today's computers are not perfect. Even brand new systems from major manufacturers can have hidden flaws. If any of several key components such as CPU, memory, cooling, etc. are not up to spec, it can lead to incorrect calculations and/or unexplained system crashes.

Overclocking is the practice of increasing the speed of the CPU and/or memory to make a machine faster at little cost. Typically, overclocking involves pushing a machine past its limits and then backing off just a little bit.

For these reasons, both non-overclockers and overclockers need programs that test the stability of their computers. This is done by running programs that put a heavy load on the computer. Though not originally designed for this purpose, this program is one of a few programs that are excellent at stress testing a computer.

The [Prime95 Wikipedia page](#) has an excellent overview on using Prime95 to test your system and ensure it is working properly. The tips presented there should be helpful regarding how long to run the torture test and provide a solid guideline on how long to run the Prime95 stress test.

Performing a stress test is simple:

- 1. [Download the software](#) and unzip the files to your desired location.
- 2. Run the Prime95 executable and select "Just Stress Testing" when asked.
- 3. The default options are sufficient to do a well balanced stress test on the system.

Upgrade Instructions for Existing Users

- 1. [Download the appropriate program](#) for your OS
- 2. Upgrade the software. Stop and exit your current version, then install the new version **overwriting the previous version**. You can upgrade even if you are in the middle of testing an exponent.
- 3. Restart the program.
- 4. Read [WhatsNew.txt](#)

Questions and Problems

Please consult the [readme.txt](#) file for possible answers. You can also search for an answer, or ask for help in the [GIMPS forums](#). Otherwise, you will need to address your question to one of the two people who wrote the program. Networking and server problems should be sent to [GIMPS admin](#). Such problems include errors contacting the server, problems with assignments or userids, and errors on the server's statistics page. All other problems and questions should be sent to [George Woltman](#), but please consult the forums first.

Disclaimers

See GIMPS [Terms and Conditions](#). However, please do send bug reports and suggestions for improvements.

Software Source Code

If you use GIMPS source code to find Mersenne primes, you must agree to adhere to the [GIMPS free software license agreement](#). Other than that restriction, you may use this code as you see fit.

The source code for the program is highly optimized Intel assembly language. There are many more-readable FFT algorithms available on the web and in textbooks. The program is also completely non-portable. If you are curious anyway, you can [download all the source code](#) (49.0MB). This file includes all the version 30.8b15 source code for Windows, Linux, FreeBSD, and Mac OS X. Last updated: 2022-05-06.

The GIMPS program is very loosely based on C code written by Richard Crandall. Luke Welsh has started a web page that points to Richard Crandall's program and [other available source code](#) that you can use to help search for Mersenne primes.

Other available freeware

At this time, Ernst Mayer's [Mlucas](#) program is the best choice for non-Intel architectures. Luke Welsh has a web page that points to [available source code](#) of mostly historical interest you can use to help search for Mersenne primes.