

Compiling PARI from the GIT repository

B. Allombert and A. Page

IMB
CNRS/Université de Bordeaux

23/06/2025

Introduction

This talk focuses on the current development version of the PARI library (2.18.*), available from our GIT repository, see

<https://pari.math.u-bordeaux.fr/anongit.html>

The text of this talk is available in the files `sources.*` in

[https://pari.math.u-bordeaux.fr/Events/
LIBPARI2025/talks/](https://pari.math.u-bordeaux.fr/Events/LIBPARI2025/talks/)

Windows users

You need to use the "Windows subsystem for Linux", see
[https://pari.math.u-bordeaux.fr/PDF/
PARIwithWindows.pdf](https://pari.math.u-bordeaux.fr/PDF/PARIwithWindows.pdf)
and follow the Linux instructions.

Mac OS users

You need to have XCode and brew installed.

Linux

To install all the packages required to build PARI from source:
Debian/Ubuntu

```
sudo apt-get build-dep pari
sudo apt-get install libreadline-dev libgmp-dev \
    git bison flex automake autoconf
```

Fedora

```
sudo dnf install readline-devel gmp-devel \
    git bison perl flex automake autoconf
```

From source with GIT

Clone the PARI repository with GIT (~ 150MB).

```
git clone https://pari.math.u-bordeaux.fr/git/pari.git  
cd pari
```

PARI compilation

```
./Configure --prefix=GPDIR --mt=pthread  
make -j4 gp  
make doc  
make statest-all  
make install  
make install-bin-sta  
GPDIR/bin/gp
```

PARI compilation, debugging version

```
./Configure --prefix=GPDIR.dbg -g  
make -j4 gp.dbg  
make install -C Olinux-x86_64.dbg  
make install-lib-dyn -C Olinux-x86_64.dbg
```

Optional PARI packages

To install optional PARI packages from

<https://pari.math.u-bordeaux.fr/packages.html>

```
wget https://pari.math.u-bordeaux.fr/\
pub/pari/packages/galdata.tgz
```

```
tar xf galdata.tgz
```

```
wget https://pari.math.u-bordeaux.fr/\
pub/pari/packages/elldata.tgz
```

```
tar xf elldata.tgz
```

```
wget https://pari.math.u-bordeaux.fr/\
pub/pari/packages/galpol.tgz
```

```
tar xf galpol.tgz
```

```
wget https://pari.math.u-bordeaux.fr/\
pub/pari/packages/seadata.tgz
```

```
tar xf seadata.tgz
```

Optional PARI packages

```
wget https://pari.math.u-bordeaux.fr/\
pub/pari/packages/nflistdata.tgz
tar xf nflistdata.tgz
make install-data
```

GP configuration

Create and customize ~/.gprc. Add

```
histfile = "~/.gp_history"
colors = "lightbg" \\ or "darkbg"
lines = 40
parisizemax = 4G \\ or the maximum amount of memory
                  \\ GP can use (important)
threadsizemax = 1G
read "~/.gprc.gp"
```

Create an empty file ~/.gprc.gp

GP2C compilation

With GIT (and automake, autoconf):

```
git clone https://pari.math.u-bordeaux.fr/git/gp2c.git
cd gp2c
./autogen.sh
```

Without GIT: download GP2C from <https://pari.math.u-bordeaux.fr/download.html#gp2c>

```
tar xf gp2c-0.0.14.tar.gz
cd gp2c-0.0.14
```

GP2C compilation

```
./configure --prefix=$PWD/../GPDIR \  
    --with-paricfg=../GPDIR/lib/pari/pari.cfg \  
    --with-paricfg-dbg=../GPDIR.dbg/lib/pari/pari.cfg  
make check  
make install  
cd ..  
GPDIR/bin/gp2c -v
```

Updating GIT

To update GIT to the most recent revision:

```
git fetch
git rebase origin/master
./Configure -l
make install
```

Changelog

You can see the latest commits with

```
git log
```

Adding a C file to libpari

1. Put your file in `src/basemath/file.c`
2. Do `Configure -l`
3. Do `git add src/basemath/file.c`
4. Do `make gp`