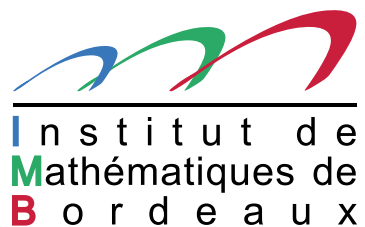# Tutorial: the PARI source code; navigation, debugging

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Introduction

This talk focuses on the current development version of the PARI library (2-6-*), freely available from our GIT repository, see

`http://pari.math.u-bordeaux.fr/anongit.html`

All material displayed during the talk is available at

`http://www.math.u-bordeaux.fr/~belabas/Atelier/`

Initial configuration

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

- `cd pari`

- `./Configure --prefix=GP -pg && make -j4 prf`

- `./Configure --prefix=GP -g && make -j4 dbg`

- `./Configure --prefix=GP && make -j4 gp`

- `make doc`

- `make test-all`

- `make install`

- `GP/bin/gp`

Text editor configuration (vim / emacs) (1/3)

First, install `ctags`. On Debian/Ubuntu systems :

```
sudo apt-get install exuberant-ctags
```

(1) For `vim`

- ● `make ctags`

- ● add to your `.vimrc` : `set tags=./tags,$PARIDIR/src/tags`

(2) For `emacs`

- ● `make etags`

- ● add to your `.emacs` : `(setq tags-table-list '("$PARIDIR/src"))`

Text editor configuration (vim / emacs) (2/3)

This is what I do for `vim` (Emacs give you analogous possibilities).

🔴 Create and customize `~/.vim/ftplugin/c.vim`

```
setlocal autoindent

setlocal path+=$PARIDIR/src/headers

setlocal path+=$PARIDIR/Olinux-i686


map <buffer> <Esc>a :if expand("%:t") == 'paridecl.h'
    <Bar> edit #
    <Bar> else
    <Bar> edit $PARIDIR/src/headers/paridecl.h
    <Bar> endif<C-M>
```

Text editor configuration (vim / emacs) (3/3)

🔴 Create and customize `~/.vim/after/syntax/c.vim`

```
syntax keyword cType GEN

syntax keyword cNumber NULL avma bot top

syntax keyword cNumber gpi gen_0 gen_1
```

GDB configuration 1/2

Edit $HOME/.gdbinit to teach gdb a number of useful macros :

🔴 Output :

```
define i
    call output((GEN)$arg0)
end

define ilb
    call outmat(lift(lift(lift((GEN)$arg0))))
end

define isb
    call outmat(gprec_w((GEN)$arg0,3))
end

define v
    call dbgGEN((GEN)$arg0,2)
end
```

GDB configuration 2/2

Advanced uses :

```
define w1
    shell rm -f /tmp/gp.tmp1
    call gpwritebin("/tmp/gp.tmp1",$arg0)
end

define bb
    break pari_err2GEN
end

define cc
    signal SIGINT
end

define fs
    p fill_stack()
end
```

GP configuration

Create and customize `~/.gprc`.

Make sure you set : `histfile`, `lines`, `path`, and `logfile` :

`logfile = "~/tmp/log.pari/%m.%d-%H.%M.%S"` Possibly `colors` and `prompt`. You probably want to increase `parisize` as well.