

# Pythia download and installation

Version: pythia 8.3.03

Steps:

1. Download pythia from the following page  
<http://home.thep.lu.se/~torbjorn/Pythia.html>

## Installation

Click here to download **pythia8303.tgz** file

To get going with the program, do the following (on a Linux or Mac OS X system):

- Download the file **pythia8303.tgz** to a suitable location.
- Unzip and expand it with `tar xvfz pythia8303.tgz`.
- Move to the thus created `pythia8303` directory.
- Read the `README` file in it for installation instructions, and apply them.

2. Move `pythia8303.tgz` to your working directory

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3. In your working directory unzip the pythia8303.tgz file

```
liangzh@LAPTOP-18CFTET9:/mnt/d/Files/research/analysis_code/pythia8$ tar -zxvf pythia8303.tgz |
```

4. Change to your pythia8303 directory

```
liangzh@LAPTOP-18CFTET9:/mnt/d/Files/research/analysis_code/pythia8$ cd pythia8303/pythia8303/
```

and then configure your setup procedure with the path to keep your installed pythia library and header files (in this example /mnt/d/.../install/ should exist)

```
liangzh@LAPTOP-18CFTET9:/mnt/d/Files/research/analysis_code/pythia8/pythia8303/pythia8303$ ./configure --prefix=/mnt/d/Files/research/analysis_code/pythia8/install/
Running PYTHIA configuration script. Now is Tue Sep 15 14:55:02 CST 2020
WARNING: CXX not set, using g++.
-----
|                          PYTHIA Configuration Summary                          |
|-----|-----|
Architecture                = LINUX
C++ compiler                 CXX      = g++
C++ flags                    CXX_COMMON = -O2 -std=c++11 -pedantic -W -Wall -Wshadow -fPIC
C++ shared flag              CXX_SHARED = -shared
Further options              =
The following optional external packages will be used:
```

5. Compile the source code (take quite a few minutes)

```
liangzh@LAPTOP-18CFTET9:/mnt/d/Files/research/analysis_code/pythia8/pythia8303/pythia8303$ make
g++ src/Analysis.cc -o tmp/Analysis.o -c -MD -Iinclude -O2 -std=c++11 -pedantic -W -Wall -Wshadow -fPIC
g++ src/Basics.cc -o tmp/Basics.o -c -MD -Iinclude -O2 -std=c++11 -pedantic -W -Wall -Wshadow -fPIC
g++ src/BeamParticle.cc -o tmp/BeamParticle.o -c -MD -Iinclude -O2 -std=c++11 -pedantic -W -Wall -Wshadow -fPIC
g++ src/BeamRemnants.cc -o tmp/BeamRemnants.o -c -MD -Iinclude -O2 -std=c++11 -pedantic -W -Wall -Wshadow -fPIC
g++ src/BeamShape.cc -o tmp/BeamShape.o -c -MD -Iinclude -O2 -std=c++11 -pedantic -W -Wall -Wshadow -fPIC
g++ src/BoseEinstein.cc -o tmp/BoseEinstein.o -c -MD -Iinclude -O2 -std=c++11 -pedantic -W -Wall -Wshadow -fPIC
```

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6. After a long compilation, now you can install it

```
cp Makefile.inc share/Pythia8/../../../../examples/Makefile.inc
liangzh@LAPTOP-18CFTET9:/mnt/d/Files/research/analysis_code/pythia8/pythia8303/pythia8303$ make install
mkdir -p /mnt/d/Files/research/analysis_code/pythia8/install//bin /mnt/d/Files/research/analysis_code/pythia8/install//include /mnt/d/Files/research/analysis_code/pythia8/install//lib /mnt/d/Files/research/analysis_code/pythia8/install//share/Pythia8
rsync -a bin/* /mnt/d/Files/research/analysis_code/pythia8/install//bin
rsync -a include/* /mnt/d/Files/research/analysis_code/pythia8/install//include
```

then you will find following directories in your selected prefix path

```
liangzh@LAPTOP-18CFTET9:/mnt/d/Files/research/analysis_code/pythia8/pythia8303/pythia8303$ cd /mnt/d/Files/research/analysis_code/pythia8/install/
liangzh@LAPTOP-18CFTET9:/mnt/d/Files/research/analysis_code/pythia8/install$ ls
bin  include  lib  share
```

7. Setup your **PYTHIA8** and **PYTHIA8DATA** environment variable and add **PYTHIA8** to your **LD\_LIBRARY\_PATH** variable

In your **~/.bashrc** file, add the following environment variable, you may want source your **.bashrc** file to activate the changes

```
export PYTHIA8=/mnt/d/Files/research/analysis_code/pythia8/install
export PYTHIA8DATA=/mnt/d/Files/research/analysis_code/pythia8/install/share/Pythia8/xml/doc/
export LD_LIBRARY_PATH=$PYTHIA8/lib/:$LD_LIBRARY_PATH
```

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## 8. Test your pythia installation

cd to your installed pythia example directory

```
liangzh@LAPTOP-18CFTET9:/mnt/d/Files/research/analysis_code/pythia8/install$ cd $PYTHIA8/share/Pythia8/examples/  
then compile your example01
```

```
liangzh@LAPTOP-18CFTET9:/mnt/d/Files/research/analysis_code/pythia8/install/share/Pythia8/examples$ make main01
g++ main01.cc -o main01 -I/mnt/d/Files/research/analysis_code/pythia8/install//include -O2 -std=c++11 -pedantic -W -Wall -Wshadow -fPIC -L/mnt/d/Files/research/analysis_code/pythia8/install//lib -Wl,-rpath,/mnt/d/Files/research/analysis_code/pythia8/install//lib -lpythia8 -ldl
```

after that, you can run this program

```
liangzh@LAPTOP-18CFTET9:/mnt/d/Files/research/analysis_code/pythia8/install/share/Pythia8/examples$ ./main01
```

If you see following by the end of output, then congrats, installation done!

```
*10^ 2 00000000000000111111111111222222222222333333333333444444444444555555555555666666666666
*10^ 1 0012344567890122345667890012344567890122345667890012344567889012234566789001234456788
*10^ 0 186420864208642086420864208642086420864208642086420864208642086420864208642086420864208
```

Entries = 100 Mean = 1.8670e+02 Underflow = 0.0000e+00 Low edge = -5.0000e-01  
All chan = 1.0000e+02 Rms = 6.1911e+01 Overflow = 0.0000e+00 High edge = 7.9950e+02