

CompHEP-4.1. Installation.

New: For Mac users the installation instruction is [here](#)

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Preliminary remarks and notations.

In this document we suppose that Linux is used. Thus, if you have another OS on the computer, please adjust this installation procedure according to requirements of your OS.

Below, we use the following notations:

```
XXXX - CompHEP version number;  
comphep-XXXX - directory where CompHEP files will live;  
comphep-XXXX.tgz - distributive tar-file with sources;  
comphep-XXXX-linux.tgz - distributive tar-file with binaries;
```

See section 4 for the installation from binary distributive.

Compilation of the package from the source distributive.

1. Untar gzip-tar distributive archive:

```
tar xzvf comphep-XXXX.tgz
```

The directory with name comphep-XXXX will be created with all files of CompHEP distributive.

2. Pass to the comphep-XXXX directory:

```
cd comphep-XXXX
```

3. Launch configure script:

```
./configure
```

This script has several options. In order to get help for the options execute `./configure -help`

4. `./configure` generates several files with compiler/linker options: `CC`, `CFLAGS`, `CLIBS`, `F77`, `F77FLAGS`, `F77LIBS`, `RANLIB`. If user wants additional or other option, (s)he can edit these files. Default values (for Linux):

```
CC = gcc  
CFLAGS = -Wall -DNUM_DOUBLE -DCOMPHEP  
CLIBS = -Llib -lX11 -lm  
F77 = gfortran  
F77FLAGS =
```

```
F77LIBS = -lgfortran -lgcc
RANLIB = ranlib
```

If user wants to have an interface with ROOT the option `-with-root` must be used. In this case, two files `ROOTFLAGS` and `ROOTLIBS` will have options and libraries necessary for the interface.

5. Compile CompHEP:

```
make
```

NOTE: All CompHEP binaries are ready to use. But for convenient work with CompHEP we recommend to create a user directory, which will contain necessary scripts, model files, and directories for results of your calculation.

Installation of a user directory

In order to create a user working directory execute:

```
make setup WDIR=path_to_user_work_directory
```

NOTE:

- WDIR is a path to a directory where you want to have all CompHEP start-up scripts. Default value is

```
../comphep_XXXX_usr_test (relatively to $COMPHEP).
```

- Do not use '~' (tilde) to point home directory. Use the \$HOME variable instead of '~'.

After that go to WDIR and enjoy CompHEP!

Additional services are provided.

1. Clean up CompHEP :

```
make clean
```

2. make tar gzip archive of CompHEP:

```
make dist
```

NOTE: Archives will be in directory `comphep-XXXX/..` with the name `comphep-XXXX.tgz`

Some incompatibilities with previous versions.

1. Models of CompHEP version 4.4 and later have different notations for leptons:

e,E/ne,Ne instead of e1,E1/n1,N1; m,M/nm,Nm instead of e2,E2/n2,N2; and l,L/nl,Nl instead of e3,E3/n3,N3.

2. In debug mode the environment variable COMPHEP defined in the startup scripts like ~/.cshrc can interfere with the run time environment defined in the script 'comphep'

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