

Geant4

Como instalar

<http://cern.ch/geant4>

<http://geant4.cern.ch>

Básico

Vá para o *site* (sítio) do Geant4: (todos apontam para o mesmo *site*)

<http://geant4.web.cern.ch/geant4>

<http://cern.ch/geant4>

<http://geant4.cern.ch>

Se esquecer, use o Google: geant4 cern

Geant4

[Download](#) | [User Forum](#) | [Gallery](#)
[Contact Us](#)

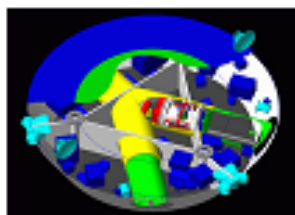
Geant4 is a toolkit for the simulation of the passage of particles through matter. Its areas of application include high energy, nuclear and accelerator physics, as well as studies in medical and space science. The two main reference papers for Geant4 are published in *Nuclear Instruments and Methods in Physics Research A* [506 \(2003\) 250-303](#), and *IEEE Transactions on Nuclear Science* [53 No. 1 \(2006\) 270-278](#).

Applications



[A sampling of applications, technology transfer and other uses of Geant4](#)

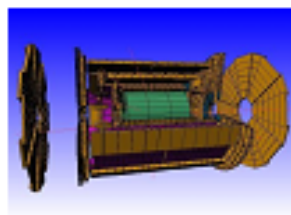
User Support



[Getting started, guides and information for users and developers](#)

click aqui

Results & Publications Collaboration



[Validation of Geant4, results from experiments and publications](#)



[Who we are: collaborating institutions, members, organization and legal information](#)

News

- 18 December 2009 •
Release 9.3 is available from the [download area](#).
- 28 August 2009 •
Patch-02 to release 9.2 is available from the [download area](#).

Events

- [Geant4 Users' Tutorial](#), CERN, Geneva (Switzerland), 15-19 February 2010.
- [7th Geant4 Space Users' Workshop](#), Seattle (USA), 18-20 August 2010.
- [3rd Monte Carlo Conference, MC2010](#), Hitotsubashi Memorial Hall, Tokyo (Japan), 17-20 October 2010.
- [Past events](#)

[Applications](#) | [User Support](#) | [Results & Publications](#) | [Collaboration](#) | [Site Map](#)

Last updated: 18 Dec 2009

What is Geant4?

Find out in a [brief overview](#) which describes the project. More detail is provided in the [Introduction to Geant4](#), and in a full journal article [NIM A 506 \(2003\) 250-303](#).

As you encounter questions or problems, please [consult the FAQ](#) or take advantage of the [user support](#) provided by Geant4 developers.

Installing Geant4

You can begin installing Geant4 by [downloading the code](#) from the distribution page. Next, consult the [Installation Guide](#) for the instructions required to set up Geant4 in your computing environment.

Building an Application

Once you have installed the toolkit, the [Application Developers Guide](#) will provide information and examples for building your own simulation application.

Getting Help

As problems arise, try [browsing the user forum](#) to see whether or not your problem has already been encountered. If it hasn't, you can post it and Geant4 developers will do their best to find a solution. This is also a good place to discuss Geant4 topics in general.

Related Links

- [User Documentation](#)
- [Bug reports and fixes](#)
- [Mailing list subscription](#)
- [Training courses and materials](#)
- [User requirements document \(pdf\)](#)
- [User requirements tracker](#)

Geant 4

[Download](#) | [User Forum](#) | [Gallery](#) | [Contact Us](#)

Search Geant4

[Home](#) > [User Support](#) > [Download](#)

Geant4 Software Download

Geant4 9.3

released 18 December 2009

The Geant4 source code is freely available. See the [licence conditions](#).

Please read the [Release Notes](#) before downloading or using this release.

Source files

Please choose the archive best suited to your system and archiving tool:

GNU or Linux tar format, compressed using gzip (19Mbytes, 19935530 bytes) ← **linux**
After downloading, gunzip, then unpack using [GNU tar](#).

ZIP format (29Mbytes, 30895857 bytes) ← **windows**
After downloading, unpack using e.g. WinZip.

Data files (*)

For specific, optional physics processes some of the following files are required. The file format is compatible with Unix, GNU, and Windows utilities.

- Neutron data files with thermal cross sections - version 3.13 (54Mbytes, 57034762 bytes)
- Neutron data files without thermal cross sections - version 0.2 (12Mbytes, 12465281 bytes)
- Data files for low energy electromagnetic processes - version 6.9 (11Mbytes, 11203887 bytes) **NEW**
- Data files for photon evaporation - version 2.0 (7.2Mbytes, 7506068 bytes)
- Data files for radioactive decay hadronic processes - version 3.2 (743Kbytes, 761070 bytes)
- Data files for nuclear shell effects in INCL/ABLA hadronic model - version 3.0 (54Kbytes, 54909 bytes)
- Data files for measured optical surface reflectance - version 1.0 (1.2Mbytes, 1257863 bytes) **NEW**

Pre-compiled Libraries

These are compiled with Geant4 default settings and optimization turned on. Please choose according to your system/compiler:

compiled using gcc 4.1.2 on Scientific Linux CERN 5 (SLC5, based on Redhat Linux Enterprise 5), 64 bits - (18Mbytes, 18861104 bytes)

compiled using gcc 4.2.1 on Mac (MacOSX 10.6), 64 bits - (15Mbytes, 16229865 bytes)

compiled using VC++ 9.0 on Windows/XP, 32 bits - (62Mbytes, 65301835 bytes)

These libraries were built using [CLHEP version 2.0.4.5](#). Please refer to the [Release Notes](#) for platform specific notes on CLHEP.

[Applications](#) | [User Support](#) | [Results & Publications](#) | [Collaboration](#) | [Site Map](#)

Last updated: 18 Dec 2009

Related Links

- [Previous Releases of Geant4](#) (since release 7.0).
- [LXR source code browser](#).
- [Installation Guide tutorials](#) for Linux, Mac and Windows.
- [Windows CygWin installation note](#).

se não quiser usar a última versão, click aqui

click e USE!

se decidir usar windows...

Faça o download de TODOS os arquivos!

use com cuidado!

Eu uso linux !

*assim como a maioria dos
usuários do Geant4*

Você precisa ter:

→ Compilador C++

- Linux/UNIX: GCC (GNU Compiler Collection)
ou outro (por exemplo, g++)**
- OU Windows: Visual C++**

Instalação:

Preparar o sistema Linux/UNIX

1) Verificar se tem um compilador C++

```
>which g++ (gcc)  
>g++ (gcc) -version  
>which (g)make  
>(g)make -version
```

2) Verificar se tem o GNU Make

Se não tem, instale. Normalmente se encontra na seção de desenvolvimento das distribuições.

Se quiser instalar a CLHEP desde o início ...

→ CLHEP é uma biblioteca de classes do CERN, com diversas ferramentas matemáticas

<http://proj-clhep.web.cern.ch>

Entre no *site* e escolha a melhor versão, fazendo a instalação como qualquer outra biblioteca (o arquivo é um tgz, tar gzipped)

Um exemplo:

```
>cp clhep-2.0.4.3.tgz /usr/local/src/CLHEP
>cd /usr/local/src/CLHEP
>tar -zxvf clhep-2.0.4.3.tgz
>cd 2.0.4.3/CLHEP
>./configure (analisa seu sistema e cria o Makefile)
>make (~ 4 minutos)
>make check (~ 1,5 minutos)
>make install (~ 10 segundos)
```

IMPORTANTE!

No linux, entre na conta de superusuário,

/root

Você pode escolher a área onde quer instalar, por exemplo,

/usr/local/src

Copie nela o arquivo do Geant4, fazendo a instalação

A CLHEP pode estar em outro diretório, mas é preferível colocá-la também no */usr/local/src*

É preciso um visualizador...

O Geant4 possibilita o uso de vários visualizadores. Para saber mais

http://www.geant4.org/geant4/collaboration/working_groups/visualization/

Um exemplo:

- para instalar o **OpenInventor**:

 - <http://oss.sgi.com/projects/inventor/>

 - crie uma area teste e copie ali o arquivo rpm mais recente

 - use o comando

 - `rpm2cpio Inventor-2.1.5-12.el4.kb.i386.rpm | cpio -idmv`

- na sub-área do Geant4:

 - ➔ precisa editar os arquivos no **config/sys** e tirar o "**pedantic**" da opção de compilação

What is Geant4?

Find out in a [brief overview](#) which describes the project. More detail is provided in the [Introduction to Geant4](#), and in a full journal article [NIM A 506 \(2003\) 250-303](#).

As you encounter questions or problems, please [consult the FAQ](#) or take advantage of the [user support](#) provided by Geant4 developers.

Installing Geant4

You can begin installing Geant4 by [downloading the code](#) from the distribution page. Next, consult the [Installation Guide](#) for the instructions required to set up Geant4 in your computing environment.

Building an Application

Once you have installed the toolkit, the [Application Developers Guide](#) will provide information and examples for building your own simulation application.

Getting Help

As problems arise, try [browsing the user forum](#) to see whether or not your problem has already been encountered. If it hasn't, you can post it and Geant4 developers will do their best to find a solution. This is also a good place to discuss Geant4 topics in general.

Related Links

- [User Documentation](#)
- [Bug reports and fixes](#)
- [Mailing list subscription](#)
- [Training courses and materials](#)
- [User requirements document \(pdf\)](#)
- [User requirements tracker](#)

*consulte
frequentemente*

use

muito útil

Copiar o pacote do geant4 para a pasta de instalação e abrí-lo:

```
>cp geant4.9.1.p03.tar.gz /usr/local/src/
```

```
>cd /usr/local/src
```

```
>tar -zxvf geant4.9.1.p03.tar.gz
```

```
>cd geant4.9.1.p03
```

```
>mkdir data
```

(para colocar os arquivos de dados baixados da página de download)

```
>cd data
```

```
>cp ../G4EMLOW.6.2.tar.gz .
```

```
>cp ../*.tar.gz .
```

```
>tar -zxvf G4EMLOW.6.2.tar.gz
```

```
>tar -zxvf RadioactiveDecay.3.2.tar.gz
```

```
>tar -zxvf G4ABLA3.0.tar.gz
```

```
>tar -zxvf G4NDL3.12.tar.gz
```

```
>tar -zxvf PhotonEvaporation2.0.tar.gz
```

Vamos começar a instalação propriamente dita

→ Vá para a área do Geant4 recém-criada

```
[root@m41-dfnae geant4.9.1.p03]# ./Configure -build
```

```
--- Geant4 Toolkit Build ---
```

This installation shell script will examine your system and ask you questions to determine how the Geant4 Toolkit should be installed. If you get stuck on a question, you may use a ! shell escape to start a subshell or execute a command. Many of the questions will have default answers in square brackets; typing carriage return will set the default.

On AFS it is allowed to specify either absolute or relative paths (i.e. starting with the ~username construct).
[Type carriage return to continue]

The prompt used in this script allows you to use shell variables and backticks in your answers. You may use \$1, \$2, etc... to refer to the words in the default answer, as if the default line was a set of arguments given to a script shell. This means you may also use \$* to repeat the whole default line.

Everytime there is a substitution, you will have to confirm. If there is an error (e.g. an unmatched backtick), the default answer will remain unchanged and you will be prompted again

Running 'Configure -d' will bypass nearly all the questions and use the computed defaults (or answers saved in a configuration previously generated).

Type 'Configure -h' for a list of options.

You may also start interactively and then answer '& -d' at any prompt to turn on the non-interactive behaviour for the rest of the execution.

[Type carriage return to continue]

Much effort has been spent to ensure that this shell script will run on any Unix system. If despite that you can't run Configure for some reason, you'll have to set the proper environment variables by hand and follow the "manual" installation as specified in the Geant4 Installation Guide.

[Type carriage return to continue]

Definition of G4SYSTEM variable is **Linux-g++**.
That stands for:

OS : **Linux**

2) Compiler : **g++**

To modify default settings, select number above (e.g. 2)
[Press [Enter] for default settings]

I can set things up so that your shell scripts and binaries are more portable, at what may be a noticeable cost in performance. In particular, if you ask to be portable, the following happens:

- 1) Shell scripts will rely on the PATH variable rather than using the paths derived above.
- 2) ~username interpretations will be done at run time rather than by Configure.

Do you expect to run these scripts and binaries on multiple machines? **[n]**

Where is Geant4 source installed? **[/usr/local/src/geant4.9.1.p03]**

Specify the path where Geant4 libraries and source files should be installed.
[/usr/local/src/geant4.9.1.p03]

Do you want to copy all Geant4 headers in one directory? **[n]**

Please, specify default directory where ALL the Geant4 data is installed:

G4LEVELGAMMADATA:	/usr/local/src/geant4.9.1.p03/data/PhotonEvaporation2.0
G4RADIOACTIVEDATA:	/usr/local/src/geant4.9.1.p03/data/RadioactiveDecay3.2
G4LEDDATA:	/usr/local/src/geant4.9.1.p03/data/G4EMLOW5.1
G4NEUTRONHPDATA:	/usr/local/src/geant4.9.1.p03/data/G4NDL3.12
G4ABLADATA:	/usr/local/src/geant4.9.1.p03/data/G4ABLA3.0

You will be asked about customizing these next.
[/usr/local/src/geant4.9.1.p03/data]

Could not find CLHEP installed on this system!
Please, specify where CLHEP is installed:

CLHEP_BASE_DIR: **/usr/local/src/clhep2031**

You can customize paths and library name of you CLHEP installation:

- 1) CLHEP_INCLUDE_DIR: **/usr/local/src/clhep2031/include**
- 2) CLHEP_LIB_DIR: **/usr/local/src/clhep2031/lib**
- 3) CLHEP_LIB: **CLHEP**

To modify default settings, select number above (e.g. 2)

[Press [Enter] for default settings]

By default 'static' (.a) libraries are built.

Do you want to build 'shared' (.so) libraries?

[n] **y**

You selected to build 'shared' (.so) libraries.

Do you want to build 'static' (.a) libraries too?

[n]

Do you want to build 'global' compound libraries?

[n] **y**

Granular libraries are used by defaults, you asked to build global compound libraries. Do you want to build 'granular' libraries too?

[n]

Do you want to compile libraries in DEBUG mode (-g)? [n]

G4UI_NONE

If this variable is set, no UI sessions nor any UI libraries are built. This can be useful when running a pure batch job or in a user framework having its own UI system.

Do you want to set this variable ?

[n]

G4UI_BUILD_XAW_SESSION

G4UI_USE_XAW

Specifies to include and use the XAW interfaces in the application to be built.

The XAW (X11 Athena Widget set) extensions are required to activate and build this driver.

[n]

G4UI_BUILD_XM_SESSION

G4UI_USE_XM

Specifies to include and use the XM Motif based user interfaces.

The XM Motif extensions are required to activate and build this driver.

[n]

G4UI_BUILD_QT_SESSION

G4UI_USE_QT

Setting these variables will enable the building of the G4 Qt based user interface module and the use of this module in your applications respectively.

The Qt4 headers, libraries and binaries are required to enable the building of this module.

WARNING! THIS FEATURE IS EXPERIMENTAL IN THIS RELEASE!

WARNING! THIS FEATURE WILL ONLY WORK WITH Qt4!

Do you want to enable build and use of this module?

[n]

G4VIS_NONE

If this variable is set, no visualization drivers will be built or used.
Do you want to set this variable ?

[n]

G4VIS_BUILD_OPENGLX_DRIVER G4VIS_USE_OPENGLX

It is an interface to the de facto standard 3D graphics library, OpenGL. It is well suited for real-time fast visualization and prototyping. The X11 version of the OpenGL libraries is required.

[n] ← **y se quiser usar o OPENGL**

G4VIS_BUILD_OPENGLXM_DRIVER
G4VIS_USE_OPENGLXM

It is an interface to the de facto standard 3D graphics library, OpenGL. It is well suited for real-time fast visualization and prototyping. The X11 version of the OpenGL libraries and the Motif Xm extension is required.

[n] ← **y se quiser usar o OPENGL**

G4VIS_BUILD_DAWN_DRIVER
G4VIS_USE_DAWN DAWN

drivers are interfaces to the Fukui Renderer DAWN. DAWN is a vectorized 3D PostScript processor suited to prepare technical high quality outputs for presentation and/or documentation.

[n]

G4VIS_BUILD_OIX_DRIVER
G4VIS_USE_OIX

The OpenInventor driver is based on OpenInventor technology for scientific visualization. The X11 version of OpenInventor is required.

[n] **y**

OIVHOME/include
OIVHOME/lib

You have selected to use OpenInventor driver. Specify the correct path (OIVHOME) where OpenInventor is installed in your system. It was found in /usr. Press [Enter] to set this path or type the correct one.

You can set '-' (without quotation) to CANCEL the OpenInventor flag at all:

[/usr]

G4VIS_BUILD_RAYTRACERX_DRIVER
G4VIS_USE_RAYTRACERX

Allows for interactive ray-tracing graphics through X11.
The X11 package is required.

[n]

G4VIS_BUILD_VRML_DRIVER
G4VIS_USE_VRML

These driver generate VRML files, which describe 3D scenes to be visualized with a proper VRML viewer.

[n]

G4VIS_BUILD_OPENGLQT_DRIVER
G4VIS_USE_OPENGLQT

Setting these variables will enable the building of the G4 OpenGL Qt based visualisation driver and the use of this driver in your applications respectively.

The Qt4 headers, libraries and binaries are required to enable the building of this module.

WARNING! THIS FEATURE IS EXPERIMENTAL IN THIS RELEASE!

WARNING! THIS FEATURE WILL ONLY WORK WITH Qt4!

Do you want to enable build and use of this module?

[n]

G4LIB_BUILD_GDML → *posteriormente, é bom incluir este pacote e aprender a usá-lo*

Setting this variable will enable building of the GDML plugin module embedded in Geant4 for detector description persistency. It requires your system to have the XercesC library and headers installed.

Do you want to set this variable?

[n]

G4LIB_BUILD_G3TOG4

The utility module 'g3tog4' will be built by setting this variable. NOTE: it requires a valid FORTRAN compiler to be installed on your system and the 'cernlib' command in the path, in order to build the ancillary tools!

Do you want to build 'g3tog4' ?

[n]

G4LIB_BUILD_ZLIB

Do you want to activate compression for output files generated by the HepRep visualization driver?

[n]

G4ANALYSIS_USE

Activates the configuration setup for allowing plugins to analysis tools based on AIDA (Astract Interfaces for Data Analysis). In order to use AIDA features and compliant analysis tools, the proper environment for these tools will have to be set (see documentation for the specific analysis tools).

[n] **y**

End of configuration phase.

Creating configuration setup file...

WARNING: the generated configuration file can be edited if necessary!

You can introduce any change to the configuration file `/usr/local/src/geant4.9.1.p03/.config/bin/Linux-g++/config.sh` before the final installation.

To do so, use a shell escape now (e.g. `!vi /usr/local/src/geant4.9.1.p03/.config/bin/Linux-g++/config.sh`).

Press [Enter] to start installation or use a shell escape to edit config.sh:

Now starting Geant4 libraries build...

On this machine the G4SYSTEM=Linux-g++

On this machine the G4INSTALL=/usr/local/src/geant4.9.1.p03

On this machine the G4TMP=/usr/local/src/geant4.9.1.p03/tmp

On this machine the G4LIB=/usr/local/src/geant4.9.1.p03/lib

On this machine the G4LEVELGAMMADATA=/usr/local/src/geant4.9.1.p03/data/PhotonEvaporation2.0

On this machine the G4RADIOACTIVEDATA=/usr/local/src/geant4.9.1.p03/data/RadioactiveDecay3.2

On this machine the G4LEDDATA=/usr/local/src/geant4.9.1.p03/data/G4EMLOW5.1

On this machine the G4NEUTRONHPDATA=/usr/local/src/geant4.9.1.p03/data/G4NDL3.12

On this machine the G4ABLADATA=/usr/local/src/geant4.9.1.p03/data/G4ABLA3.0

On this machine the CLHEP_BASE_DIR=/usr/local/src/clhep2031

On this machine the CLHEP_INCLUDE_DIR=/usr/local/src/clhep2031/include

→ *compila e instala tudo, leva 1 ou 2 horas, até menos, dependendo do computador*

→ *se aparecer alguma mensagem de erro, copie e procure no Google. Normalmente se pode encontrar propostas de solução.*

→ *quando terminar faça: **./Configure -install***

./Configure

. env.sh

echo \$LD_LIBRARY_PATH

echo \$CLHEP_BASE_DIR/lib

(para verificar que a CLHEP está realmente declarada no library path)

cd \$G4INSTALL/source

gmake

gmake global



```
cd ../examples/novice/N02
gmake (all)
echo $G4WORKDIR
cd $G4WORKDIR/bin/Linux-g++/
cp $G4INSTALL/examples/novice/N02/vis.mac .
```

- *no vis.mac mudar a linha do OGLIX para OIX a fim de usar o OpenInventor quando a janela abrir, entrar no ETC pedir a visualizacao de mothers and daughters rodar novamente /run/beamOn 10*

* para evitar "acidentes", copie todo o exemplo desejado para uma área teste

```
mkdir teste
```

```
cp -r $G4INSTALL/examples/novice/N02/ .
```

e siga os mesmos comandos para compilar o exemplo

Sempre é aconselhável trabalhar na conta do próprio usuário, então para testar a instalação:

→ entrar na conta do usuário

→ ir para a área onde quer trabalhar com o Geant4
(por exemplo /home/begalli/Geant4/Swieca)

→ fazer

```
source /usr/local/src/geant4.9.1.p03/env.sh
cd ../examples/novice/N02
gmake all
echo $G4WORKDIR
cd $G4WORKDIR/bin/Linux-g++/
cp $G4INSTALL/examples/novice/N02/vis.mac .
```

→ *no vis.mac mudar a linha do OGLIX para OIX a fim de usar o OpenInventor quando a janela abrir, entrar no ETC pedir a visualizacao de mothers and daughters rodar novamente /run/beamOn 10*

Mais informações: <http://geant4.cern.ch>
curso do Prof. Maurício Morales