

Installing programs on GNU/Linux

Luca Freschi

v. 1.1

Everyday life



Apt

Aptitude

Synaptic

Software center

Powerful

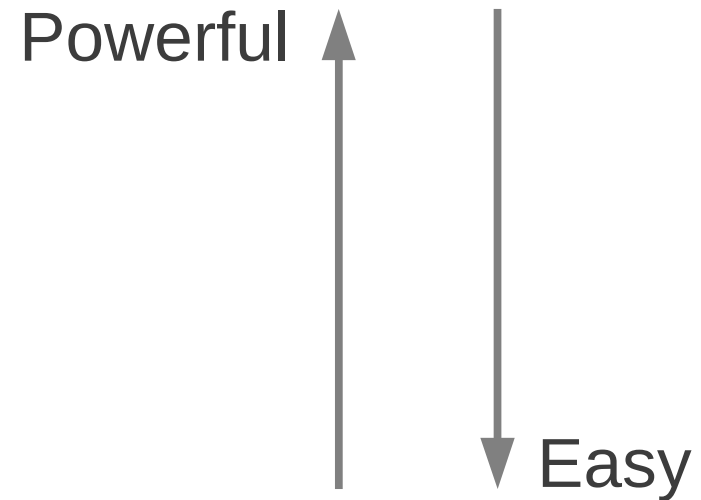


Easy

Everyday life



- Apt
Aptitude
- Synaptic
- Software center



Sometimes...



Compilation

Source code



Executable file

Sometimes...



- Compilation

Source code



Executable file

Compiled language (e.g. C, C++, Fortran)

High

Source code



Compiler (×1)



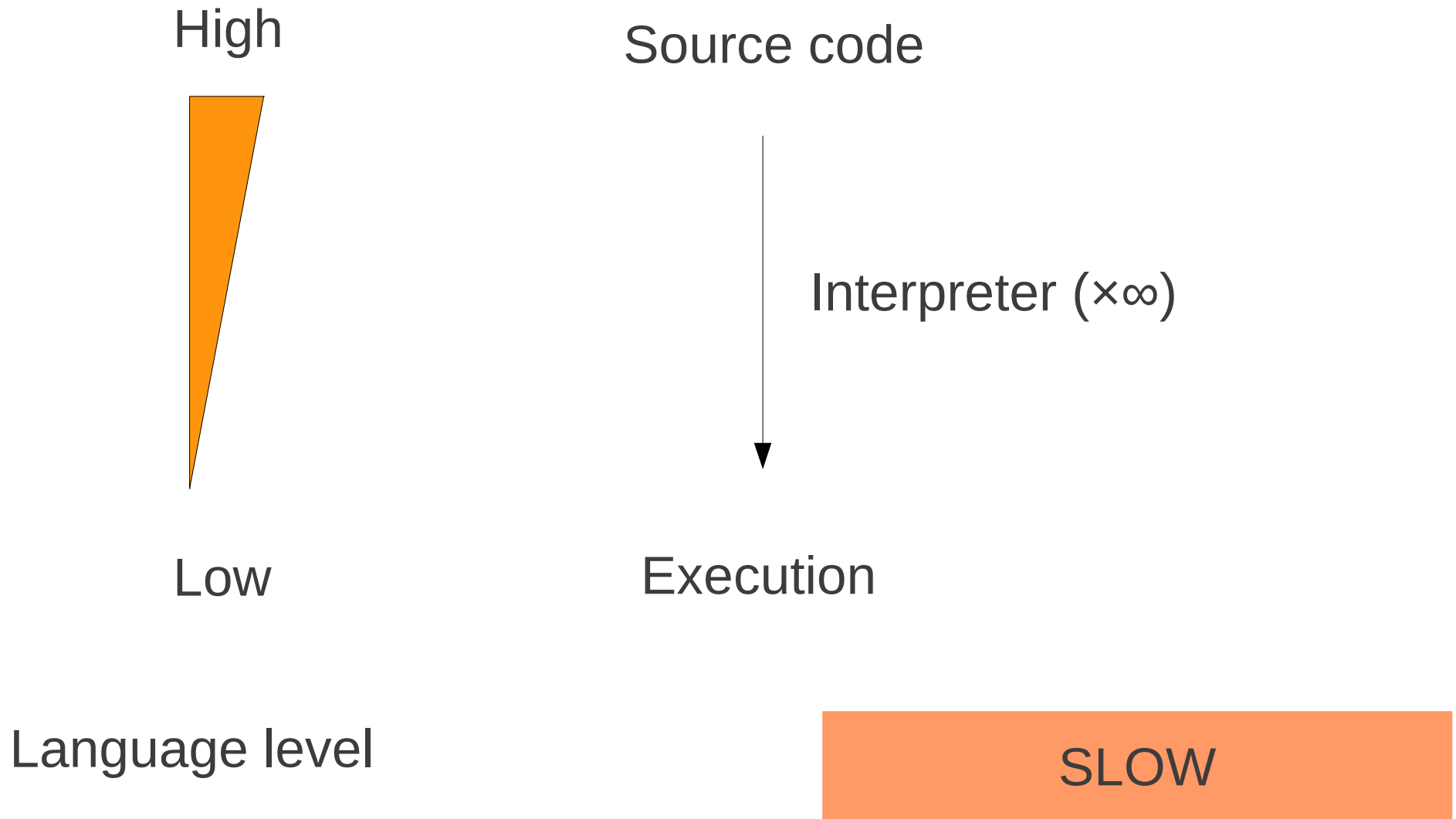
Low

Executable (×∞)

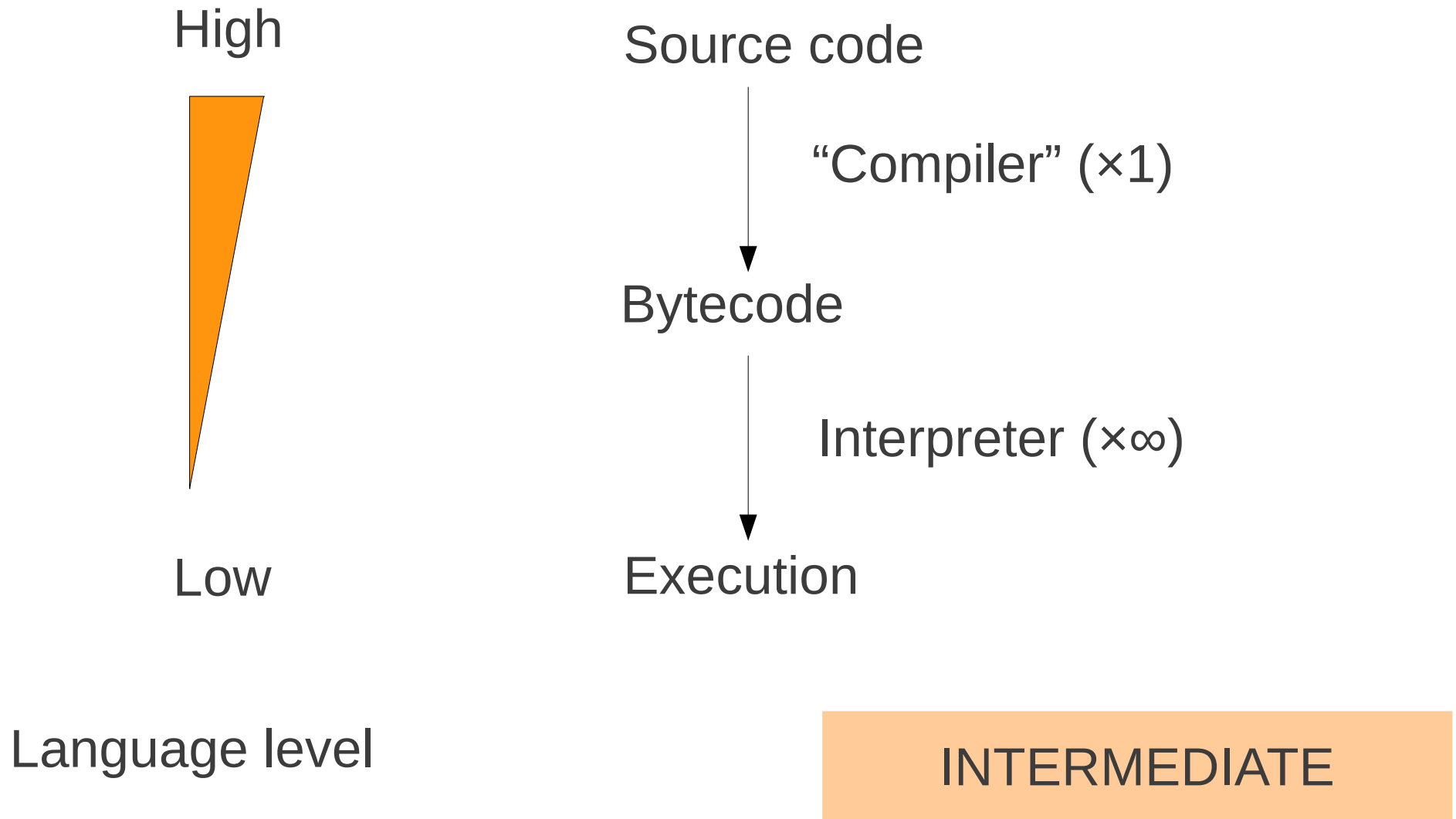
Language level

FAST

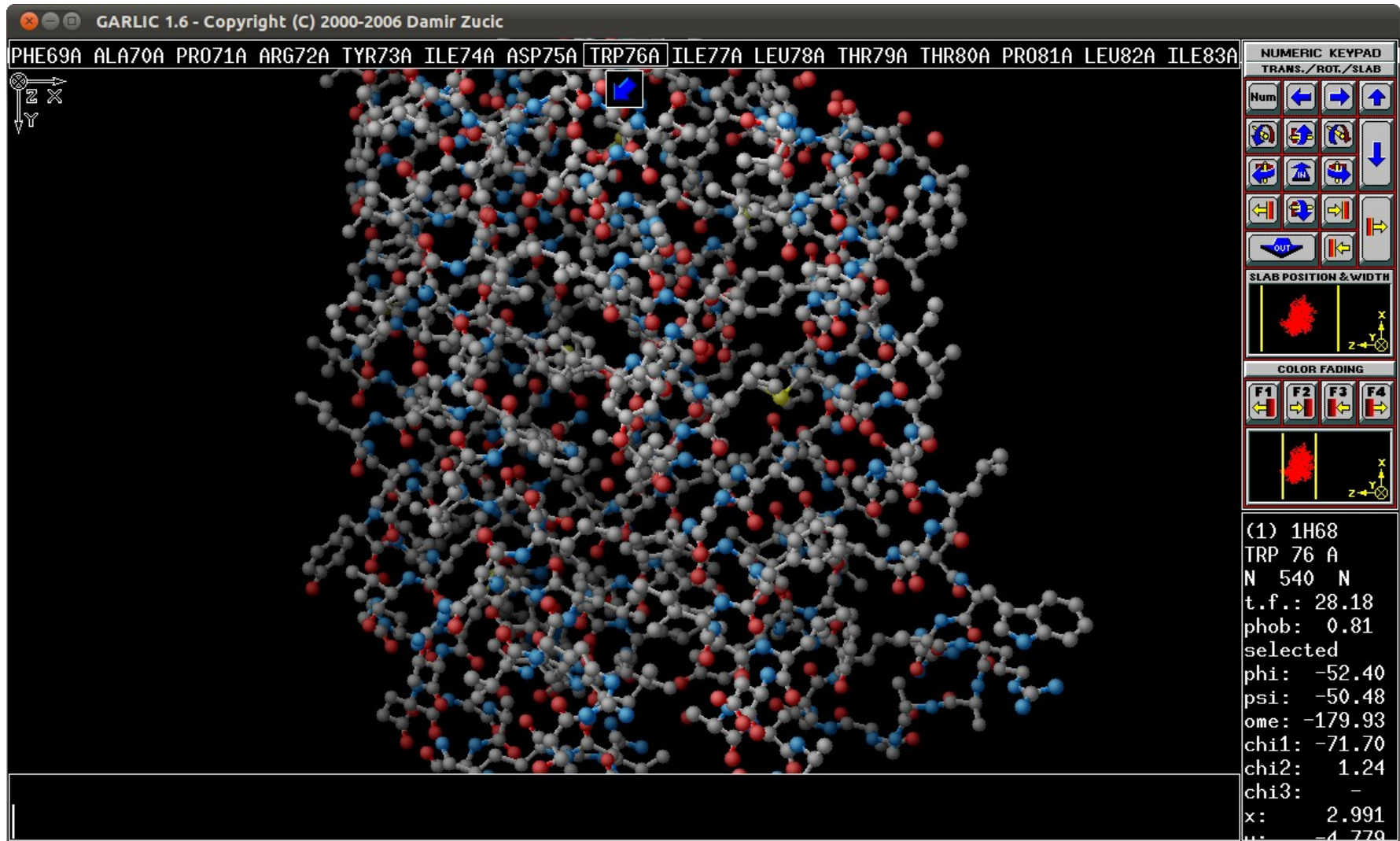
Interpreted language (e.g. R, Tcl, Php)



Compiled/Interpreted language (e.g. Python, Java)



Our case study: garlic



<http://www.zucic.org/garlic/index.html>

Let's install garlic with the Ubuntu
Software Center

- Accessories
- Games
- Graphics
- Internet
- Office
- Programming
- Sound & Video

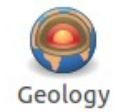
Ubuntu Software Center

Lets you choose from thousands of free applications available for Ubuntu

- Get Software
- Installed Software
- History

Get Software Science & Engineering

Science & Engineering



174 items available

- Get Software
- Installed Software
- History

Get Software > Science & Engineering > Biology

Search

- Achilles Life Simulator**
Watch a simulation of artificial life and evolution
- Adun**
Biomolecular Simulator
- Avida Evolution Simulator**
Study mutation and evolution in a virtual world
- BioCocoa**
GNUstep BioCocoa
- Clustal X**
Global multiple nucleotide or peptide sequence alignment and phylogenetic analysis
- Cn3D NCBI Database Viewer**
View NCBI databases in 3D
- DDV Sequence Alignment Viewer**
View multiple sequence alignment for GenBank
- EMBOSS Explorer**
Starts the default web browser on the local EMBOSS Explorer website.
- Entrez NCBI Database Querying Tool**
Query NCBI databases and retrieve documents
- fastDNAmI**
Tool for construction of phylogenetic trees of DNA sequences
- Garlic Protein Visualization**
Visualize and investigate proteins and some geometric objects
- GENESIS Neural Simulator**
Simulate different types of neural systems
- ImageJ**
Image processing and analysis
- Jemboss**
Graphical user interface for the European Molecular Biology Open Software Suite.
- massXpert**
Bio-polymer mass spectrometry software

More Info

Install

26 items available

- Get Software
- Installed Software
- History

Get Software > Science & Engineering > Biology

- Achilles Life Simulator**
Watch a simulation of artificial life and evolution
- Adun**
Biomolecular Simulator
- Avida Evolution Simulator**
Study mutation and evolution in a virtual world
- BioCocoa**
GNUstep BioCocoa
- Clustal X**
Global multiple nucleotide o
- Cn3D NCBI Database Vi**
View NCBI databases in 3D
- DDV Sequence Alignme**
View multiple sequence ali
- EMBOSS Explorer**
Starts the default web brow
- Entrez NCBI Database C**
Query NCBI databases and r
- fastDNAmI**
Tool for construction of phy
- Garlic Protein Visualiza**
Visualize and investigate pro
- GENESIS Neural Simulator**
Simulate different types of neural systems
- ImageJ**
Image processing and analysis
- Jemboss**
Graphical user interface for the European Molecular Biology Open Software Suite.
- massXpert**
Bio-polymer mass spectrometry software

Authenticate

To install or remove software, you need to authenticate.

An application is attempting to perform an action that requires privileges. Authentication as one of the users below is required to perform this action.

Luca Freschi (luca)

Password:

Details

Cancel Authenticate

Install

26 items available

- Get Software
- Installed Software
- History
- In Progress (1)

Get Software > Science & Engineering > Biology

Achilles Life Simulator
Watch a simulation of artificial life and evolution

Adun
Biomolecular Simulator

Avida Evolution Simulator
Study mutation and evolution in a virtual world

BioCocoa
GNUstep BioCocoa

Clustal X
Global multiple nucleotide or peptide sequence alignment and phylogenetic analysis

Cn3D NCBI Database Viewer
View NCBI databases in 3D

DDV Sequence Alignment Viewer
View multiple sequence alignment for GenBank

EMBOSS Explorer
Starts the default web browser on the local EMBOSS Explorer website.

Entrez NCBI Database Querying Tool
Query NCBI databases and retrieve documents

fastDNAmI
Tool for construction of phylogenetic trees of DNA sequences

Garlic Protein Visualization
Visualize and investigate proteins and some geometric objects

More Info Install

GENESIS Neural Simulator
Simulate different types of neural systems

ImageJ
Image processing and analysis

Jemboss
Graphical user interface for the European Molecular Biology Open Software Suite.
















massXpert
Bio-polymer mass spectrometry software

26 items available

- Get Software
- Installed Software
- History

Get Software > Science & Engineering > Biology

Search

-  **Achilles Life Simulator**
Watch a simulation of artificial life and evolution
-  **Adun**
Biomolecular Simulator
-  **Avida Evolution Simulator**
Study mutation and evolution in a virtual world
-  **BioCocoa**
GNUstep BioCocoa
-  **Clustal X**
Global multiple nucleotide or peptide sequence alignment and phylogenetic analysis
-  **Cn3D NCBI Database Viewer**
View NCBI databases in 3D
-  **DDV Sequence Alignment Viewer**
View multiple sequence alignment for GenBank
-  **EMBOSS Explorer**
Starts the default web browser on the local EMBOSS Explorer website.
-  **Entrez NCBI Database Querying Tool**
Query NCBI databases and retrieve documents
-  **fastDNAmI**
Tool for construction of phylogenetic trees of DNA sequences
-  **Garlic Protein Visualization**
Visualize and investigate proteins and some geometric objects
-  **GENESIS Neural Simulator**
Simulate different types of neural systems
-  **ImageJ**
Image processing and analysis
-  **Jemboss**
Graphical user interface for the European Molecular Biology Open Software Suite.
-  **massXpert**
Bio-polymer mass spectrometry software

More Info

Remove

26 items available

Let's install garlic with Synaptic

- Preferences
- Administration**
- Help and Support
- About GNOME
- About Ubuntu

- Additional Drivers
- Computer Janitor
- Disk Utility
- Language Support
- Log File Viewer
- Login Screen
- Network Tools
- Printing
- Startup Disk Creator
- Synaptic Package Manager**
- System Monitor
- System Testing
- Time and Date
- Update Manager
- Users and Groups

install, remove and upgrade software packages



Enter your password to perform administrative tasks

The application 'Synaptic Package Manager' lets you modify essential parts of your system.

Password:

Cancel OK

Synaptic Package Manager

File Edit Package Settings Help

Reload
 Mark All Upgrades
 Apply
 Properties

Quick search Search

- All
- Amateur Radio (universe)
- Communication
- Communication (multivers
- Communication (universe)
- Cross Platform
- Cross Platform (multiverse
- Cross Platform (universe)
- Databases
- Databases (universe)
- Debug
- Debug (multiverse)
- Debug (universe)
- Development
- Development (multiverse)
- Development (universe)
- Documentation
- Documentation (multivers

S	Package	Installed Version	Latest Version	Description
<input type="checkbox"/>	garlic		1.6-1	A visualization program for biomolecules
<input type="checkbox"/>	garlic-doc		1.6-1	[Chemistry] a molecular visualization program - documents

No package is selected.

- Sections
- Status
- Origin
- Custom Filters
- Search Results

2 packages listed, 1374 installed, 0 broken. 0 to install/upgrade, 0 to remove

Synaptic Package Manager

File Edit Package Settings Help



Reload



Mark All Upgrades



Apply



Properties

Quick search

garlic

Search

S	Package	Installed Version	Latest Version	Description
<input type="checkbox"/>	Unmark		1.6-1	A visualization program for biomolecules
<input checked="" type="checkbox"/>	Mark for Installation		1.6-1	[Chemistry] a molecular visualization program - documents
<input type="checkbox"/>	Mark for Reinstallation			
<input type="checkbox"/>	Mark for Upgrade			
<input type="checkbox"/>	Mark for Removal			
<input type="checkbox"/>	Mark for Complete Removal			

A visualization program for biomolecules

[Get Screenshot](#)

Garlic is written for the investigation of membrane proteins. It may be used to visualize other proteins, as well as some geometric objects. This version of garlic recognizes PDB format version 2.1. Garlic may also be used to analyze protein sequences.

It only depends on the X libraries, no other libraries are needed.

Features include:

- The slab position and thickness are visible in a small window.
- Atomic bonds as well as atoms are treated as independent drawable objects.
- The atomic and bond colors depend on position. Five mapping modes are available (as for slab).

2 packages listed, 1374 installed, 0 broken. 0 to install/upgrade, 0 to remove

Synaptic Package Ma...

Synaptic Package Manager

File Edit Package Settings Help



Reload



Mark All Upgrades



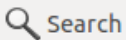
Apply



Properties

Quick search

garlic



Search

All

Amateur Radio (universe)

Communication

Communication (multivers

Communication (universe)

Cross Platform

Cross Platform (multiverse

Cross Platform (universe)

Databases

Databases (universe)

Debug

Debug (multiverse)

Debug (universe)

Development

Development (multiverse)

Development (universe)

Documentation

Documentation (multivers

S	Package	Installed Version	Latest Version	Description
<input checked="" type="checkbox"/>	garlic		1.6-1	A visualization program for biomolecules
<input type="checkbox"/>	garlic-doc		1.6-1	[Chemistry] a molecular visualization program - documents

A visualization program for biomolecules

[Get Screenshot](#)

Garlic is written for the investigation of membrane proteins. It may be used to visualize other proteins, as well as some geometric objects. This version of garlic recognizes PDB format version 2.1. Garlic may also be used to analyze protein sequences.

It only depends on the X libraries, no other libraries are needed.

Features include:

- The slab position and thickness are visible in a small window.
- Atomic bonds as well as atoms are treated as independent drawable objects.
- The atomic and bond colors depend on position. Five mapping modes are available (as for slab).

2 packages listed, 1374 installed, 0 broken. 1 to install/upgrade, 0 to remove; 958 kB will be used

Synaptic Package Ma...

Synaptic Package Manager

File Edit Package Settings Help



Reload



Mark All Upgrades



Apply



Properties

Quick search

garlic



Search

All

Amateur Radio (universe)

Communication

Communication (multivers

Communication (universe)

Cross Platform

Cross Platform (multiverse

Cross Platform (universe)

Databases

Databases (universe)

Debug

Debug (multiverse)

Debug (universe)

Development

Development (multiverse)

Development (universe)

Documentation

Documentation (multivers

Sections

Status

Origin

Custom Filters

Search Results

S	Package	Installed Version	Latest Version	Description
<input checked="" type="checkbox"/>	garlic		1.6-1	A visualization program for biomolecules
<input type="checkbox"/>	garlic-doc		1.6-1	[Chemistry] a molecular visualization program - documents

A visualization program for biomolecules

[Get Screenshot](#)

Garlic is written for the investigation of membrane proteins. It may be used to visualize other proteins, as well as some geometric objects. This version of garlic recognizes PDB format version 2.1. Garlic may also be used to analyze protein sequences.

It only depends on the X libraries, no other libraries are needed.

Features include:

- The slab position and thickness are visible in a small window.
- Atomic bonds as well as atoms are treated as independent drawable objects.
- The atomic and bond colors depend on position. Five mapping modes are available (as for slab).

2 packages listed, 1374 installed, 0 broken. 1 to install/upgrade, 0 to remove; 958 kB will be used

Synaptic Package Ma...

Reload
 Mark All Upgrades
 Apply
 Properties

Quick search Search

S	Package	Installed Version	Latest Version	Description
<input checked="" type="checkbox"/>	garlic		1.6-1	A visualization program for biomolecules
<input type="checkbox"/>	garlic-doc		1.6-1	[Chemistry] a molecular visualization program - documents

- All
- Amateur Radio (universe)
- Communication
- Communication (multivers)
- Communication (universe)
- Cross Platform
- Cross Platform (multiverse)
- Cross Platform (universe)
- Databases
- Databases (universe)
- Debug
- Debug (multiverse)
- Debug (universe)
- Development
- Development (multiverse)
- Development (universe)
- Documentation
- Documentation (multivers)

A visualization program for biomolecules

Get Screenshot

Garlic is written for the investment used to visualize other proteins. This version of garlic recognizes also be used to analyze proteins.

It only depends on the X libraries.

Features include:

- The slab position and thickness
- Atomic bonds as well as atoms are treated as independent drawable objects.
- The atomic and bond colors depend on position. Five mapping modes are available (as for slab).

Summary

Apply the following changes?

This is your last opportunity to look through the list of marked changes before they are applied.

- To be installed

Summary

- 1 new package will be installed
- 958 kB of extra space will be used
- 0 B have to be downloaded

Download package files only

Buttons: Cancel, Apply (highlighted in red), Show Details



- All
- Amateur Radio (universe)
- Communication
- Communication (multivers
- Communication (universe)
- Cross Platform
- Cross Platform (multiverse
- Cross Platform (universe)
- Databases
- Databases (universe)
- Debug
- Debug (multiverse)
- Debug (universe)
- Development
- Development (multiverse)
- Development (universe)
- Documentation
- Documentation (multivers

No package is selected.

Applying Changes

Installing software

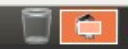
The marked changes are now being applied. This can take some time. Please wait.

Running dpkg

Automatically close after the changes have been successfully applied

► Details

Close



Reload Mark All Upgrades Apply Properties

Quick search garlic Search

- All
 - Amateur Radio (universe)
 - Communication
 - Communication (multivers
 - Communication (universe)
 - Cross Platform
 - Cross Platform (multiverse
 - Cross Platform (universe)
 - Databases
 - Databases (universe)
 - Debug
 - Debug (multiverse)
 - Debug (universe)
 - Development
 - Development (multiverse)
 - Development (universe)
 - Documentation
 - Documentation (multivers
- Sections
Status
Origin
Custom Filters
Search Results

No package is selected.

Changes applied

Successfully applied all changes. You can close the window now.

Automatically close after the changes have been successfully applied

► Details

Close



Synaptic Package Manager

File Edit Package Settings Help

Reload
 Mark All Upgrades
 Apply
 Properties

Quick search Search

- All
- Amateur Radio (universe)
- Communication
- Communication (multivers
- Communication (universe)
- Cross Platform
- Cross Platform (multiverse
- Cross Platform (universe)
- Databases
- Databases (universe)
- Debug
- Debug (multiverse)
- Debug (universe)
- Development
- Development (multiverse)
- Development (universe)
- Documentation
- Documentation (multivers

S	Package	Installed Version	Latest Version	Description
<input checked="" type="checkbox"/>	garlic	1.6-1	1.6-1	A visualization program for biomolecules
<input type="checkbox"/>	garlic-doc		1.6-1	[Chemistry] a molecular visualization program - documents

No package is selected.

- Sections
- Status
- Origin
- Custom Filters
- Search Results

2 packages listed, 1375 installed, 0 broken. 0 to install/upgrade, 0 to remove

Let's install garlic with Apt

- Accessories
 - Calculator
 - Character Map
 - Disk Usage Analyzer
 - GNU Emacs 23
 - Manage Print Jobs
 - Search for Files...
 - Take Screenshot
 - Terminal**
 - Text Editor
 - Tomboy Notes
- Games
- Graphics
- Internet
- Office
- Programming
- Sound & Video
- Ubuntu Software Center

Use the command line

```
luca@poynting: ~  
File Edit View Search Terminal Help  
luca@poynting:~$ sudo apt-get install garlic
```

```
luca@poynting: ~  
File Edit View Search Terminal Help  
luca@poynting:~$ sudo apt-get install garlic  
[sudo] password for luca: █
```



```
luca@poynting: ~  
File Edit View Search Terminal Help  
luca@poynting:~$ sudo apt-get install garlic  
[sudo] password for luca:  
Reading package lists... Done  
Building dependency tree  
Reading state information... Done  
Suggested packages:  
  garlic-doc openbabel  
The following NEW packages will be installed:  
  garlic  
0 upgraded, 1 newly installed, 0 to remove and 0 not upgraded.  
Need to get 0B/246kB of archives.  
After this operation, 958kB of additional disk space will be used.  
Selecting previously deselected package garlic.  
(Reading database ... 127188 files and directories currently installed.)  
Unpacking garlic (from ../archives/garlic_1.6-1_i386.deb) ...  
Processing triggers for man-db ...  
Processing triggers for python-gmenu ...  
Rebuilding /usr/share/applications/desktop.en_US.utf8.cache...  
Processing triggers for desktop-file-utils ...  
Processing triggers for python-support ...  
Setting up garlic (1.6-1) ...  
luca@poynting:~$
```