Building NUKAK3D

ALEXANDER PINZON FERNANDEZ

October 10, 2008

Building NUKAK3D

Developer's Guide

Autor:

Alexander Pinzon Fernandez

apinzonf@gmail.com

Title:

"Building NUKAK3D"

Contents

Chapter 1

Introduction

This the guide for compilation Nukak3D, we assume that the user is a novice in the work of programming in C and C + + with CMake so that give us all the steps we made for the successful construction software, but if you do not understand some of the terms used or refencia to certain techniques or paradigms of programming you should stop and documented a bit before continuing, as if conducting continuous process and not understand what is at risk of being badly spent his time.

Nukak3d is a flexible architecture that integrates general-purpose graphics libraries such as VTK, ITK, VTKInria3D, OpenGL, under a graphical user interface (wxWidgets) for three-dimensional visualization and processing of medical images.

This product has been developed by Bioingenium Research Group, within the frame of the computer graphics project at the National University of Colombia .

The system was developed in programming language C and C + +.

This project was built using CMake[1] which provides a platform for independent development of the operating system, and many compilers currently can be found for C, C + +.

We use the version control system Subversion[2] for organizing, structuring and monitoring changes in the source files.

Based on Open Source libraries

- ITK, Insight Segmentation and Registration Toolkit: `http://www.itk.org`

- VTK, Visualization Toolkit: `http://www.vtk.org`

- wxWidgets, toolkit for creating graphical user interfaces for cross-platform applications:
  `http://www.wxwidgets.org`

- vtkINRIA3D, Spatiotemporal Data Synchronization, Visualization and Management:
  `https://gforge.inria.fr/projects/vtkinria3d`

---

[1] CMake, Copyright (c) 2002 Kitware, Inc., Insight Consortium, `http://www.cmake.org`
[2] Subversion, Copyright (c) 2000-2006 CollabNet, `http://subversion.tigris.org`

- OpenGL, Open Graphic Library: `http://www.opengl.org`

- XML-Expat: `html://expat.sourceforge.net`

- LibTIFF: `html://www.libtiff.org`

- LibJPEG: `http://www.ijg.org`

1.1 Getting Sources

1.1.1 Introduction

The source of Nukak3D, is available via web, or in svn repository. You can download the latest stable version in a single file, or observe the latest changes through svn.

If you want to download via web, it can be found at the following links, here we refer specifically to version 4.6, if you find a new version this manual even be helpful for the construction of Nukak3D.

- File tar.gz:
  `http://downloads.sourceforge.net/nukak3d/nukak3d-4.6.0.tar.gz`

- System's with support the RPM Package Manager (Suse, RedHat, etc):
  `http://downloads.sourceforge.net/nukak3d/nukak3d-4.6-0.src.rpm`

1.1.2 Subversion Access

Subversion is used by this software to manage changes within their source code.

You need svn client to access a Subversion repository, svn clients are available for most any operating system, we use the following clients svn, you use these or one different from their preference.

- For windows, TortoiseSVN x client:
  `http://tortoisesvn.net/downloads`

- For Mac Os, Universal Subversion Binaries for MAC OS X
  `http://www.collab.net/downloads/community/`

- For GNU/Linux, SubdiverSVN
  `http://subdiversvn.sourceforge.net/`

- En la linea de comandos

1.2 Getting Dependencies

Nukak 3D integrates graphics libraries of general purpose as VTK, ITK, VTKInria3D, under a graphical user interface (wxWidgets).

You need to build Nukak3D obtain and compile each of these libraries. In this guide show how to obtain and compile, configure each of these libraries for use with the Nukak3D.

1.2.1   Getting ITK

ITK, Insight Segmentation and Registration Toolkit: `http://www.itk.org`, is used in Nukak3D for Image Processing.
ITK version **3.4** or higher is required for Nukak3D.

For download **InsightToolkit-3.8.0**, visit this link
`http://voxel.dl.sourceforge.net/sourceforge/itk/InsightToolkit-3.8.0.tar.gz`

1.2.2   Getting VTK

VTK, Visualization Toolkit: `http://www.vtk.org`, is used for visualization of the data sets, and polygon meshes.
VTK version **5.0.4** or higher is required for Nukak3D.

For download **vtk-5.2.0**, visit this link
`http://www.vtk.org/files/release/5.2/vtk-5.2.0.tar.gz`

1.2.3   Getting VTKInria3D

VTKInria3D, is used to spatiotemporal data synchronization, visualization and management:
VTKInria3D svn revision **827** or higher is required for Nukak3D.

For download VTKInria3D, you need register in the site InriaGforge `https://gforge.inria.fr/account/register.php`, register is free.

If you already have the structure list of directories where you will put the source code then you must perform these steps to obtain the source code of vtkinria3d through svn.

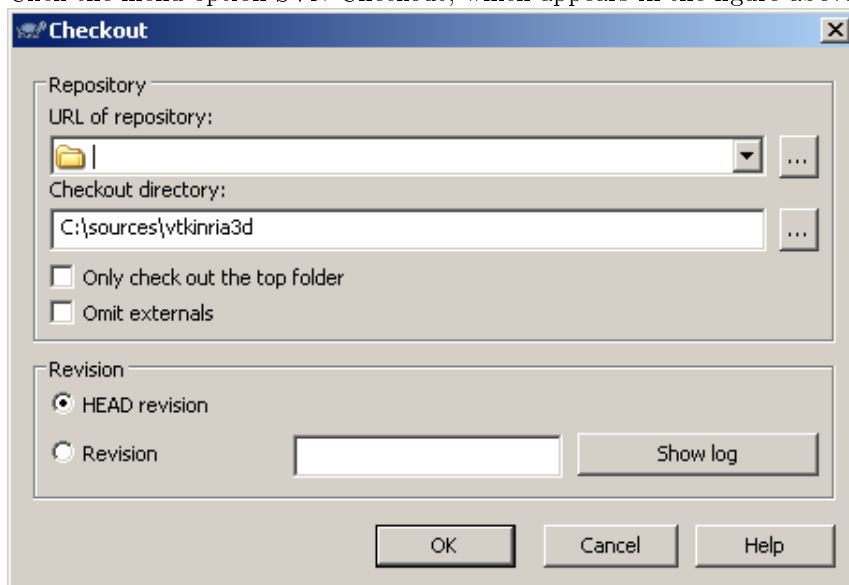- Locate the directory where the files will make the source code of vtkinria3d.
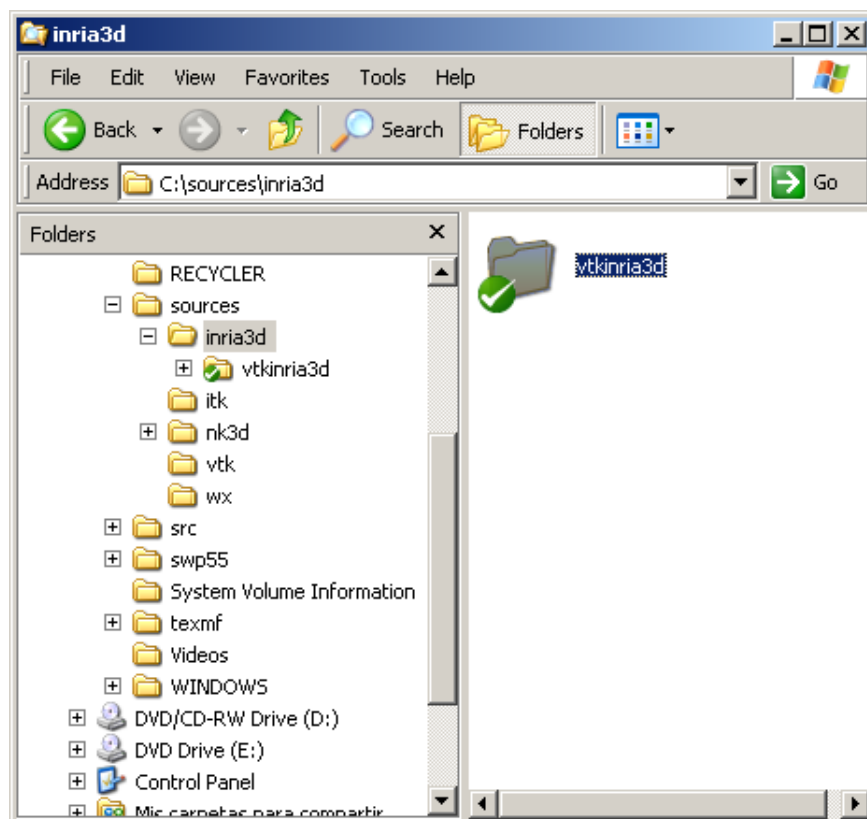
- Right click on the folder vtkinria3d, a dialgo appear similar to this
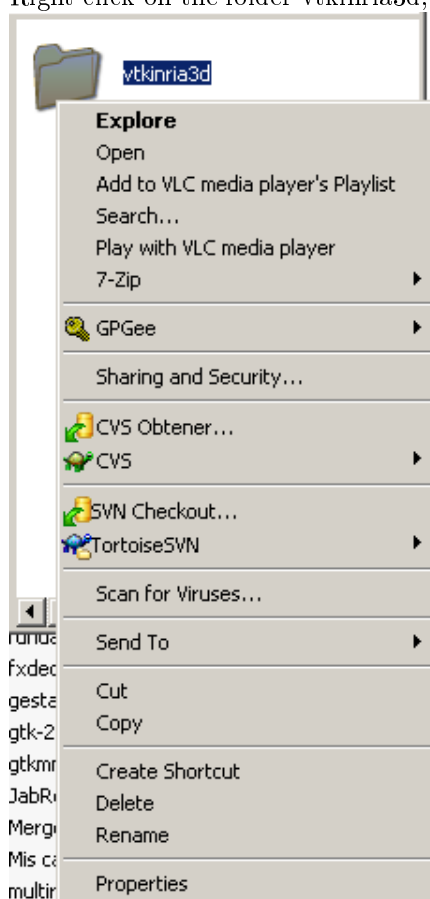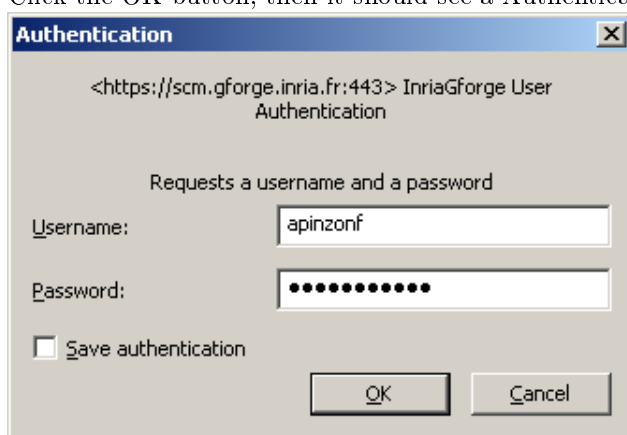
- Click the menu option SVN Checkout, which appears in the figure above, and should see a box like this.


  In the text box below the label URLofrepository:, put the following address
  `https://scm.gforge.inria.fr/svn/vtkinria3d`

- Click the OK button, then it should see a Authentication dialog similar to this.

  Write your name and password on the register obtained in InriaGforge `https://gforge.inria.fr/account/register.php`

- Click the OK button, then it should see a progress dialog similar to the following.
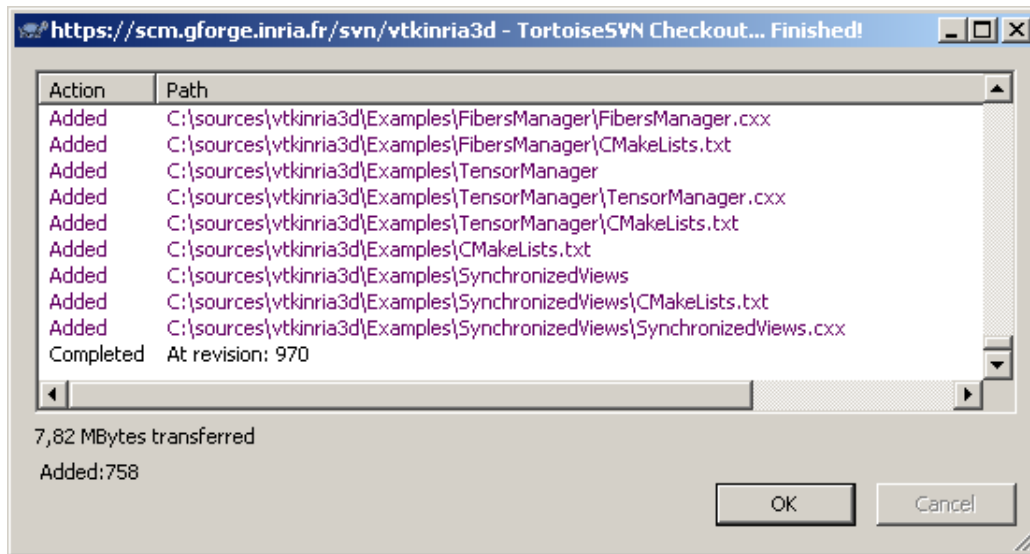
Click OK to finish.

- After downloading the source code into the directory vtkinria3d, you should view it a group of folders similar to those
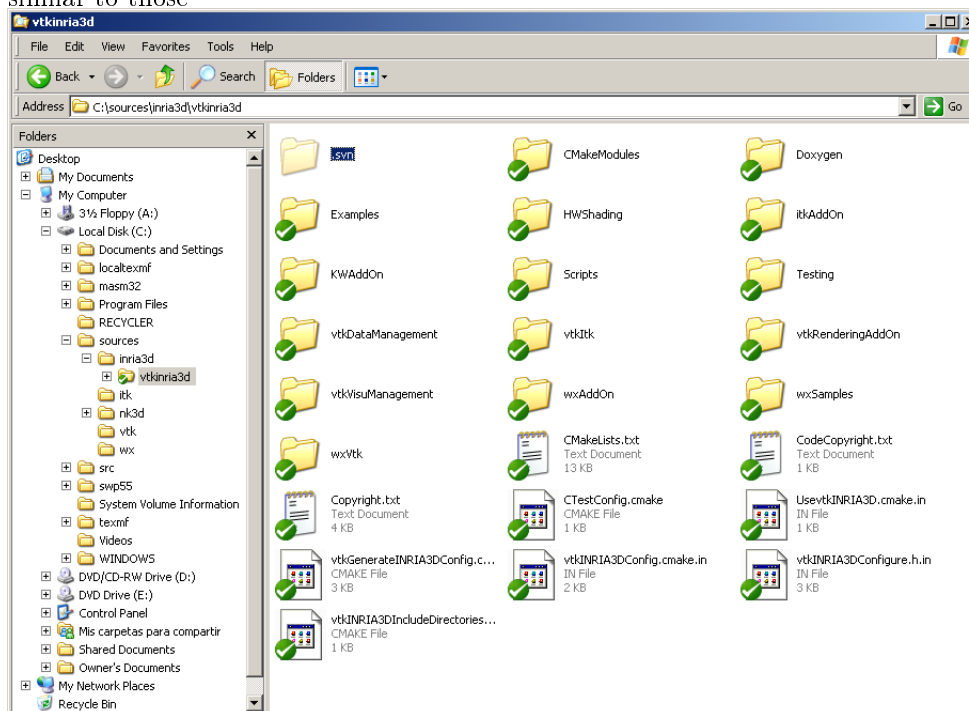
1.2.4 Access in command line

- Go to the directory where the download vtkinria3d

```
$ cd /home/apinzonf/sources/inria3d/vtkinria3d
$ cd ..
```

- run the following command, in username put obtained name in InriaGforge https://gforge.inria.fr/account/register.php

```
$ svn checkout --username login https://scm.gforge.inria.fr/svn/vtkinria3d
```

1.2.5   Getting wxWidgets

wxWidgets, is used in Nukak3D for creating graphical user interfaces for cross-platform applications:
wxWidgets version **2.6.4** or higher is required for Nukak3D.

For download **wxWidgets-2.8.9**, visit this link
`http://prdownloads.sourceforge.net/wxwindows/wxWidgets-2.8.9.tar.gz`

Chapter 2

Building Nukak3D on windows

2.1 Introduction
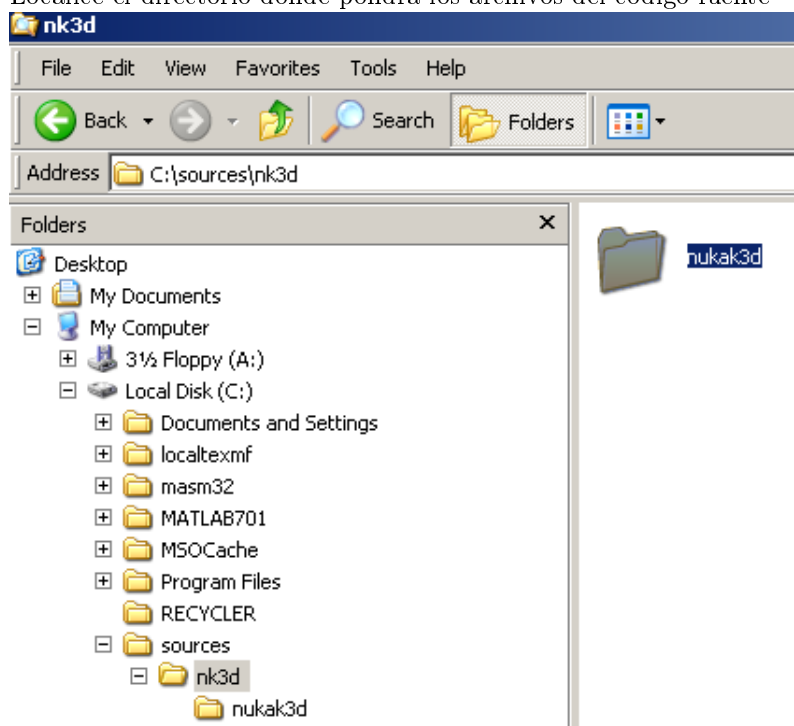
bla bla la poposoft

2.2 Getting Sources

bla bla

2.2.1 Subversion Access in windows with Tortoise

Si ya tiene lista la estructura de directorios donde usted va a colocar el codigo fuente entonces, debe realizar estos pasos para obtener el codigo fuente del nukak3d mediante svn.

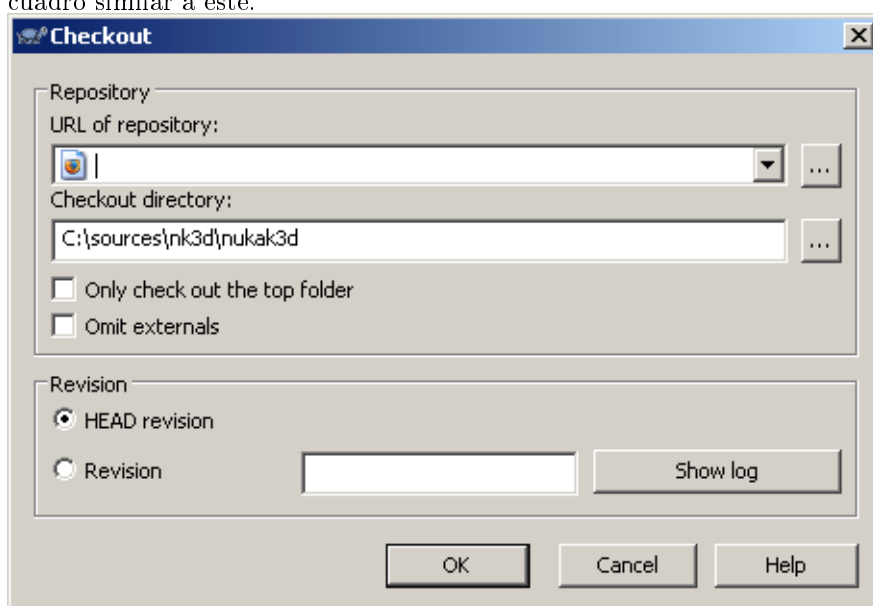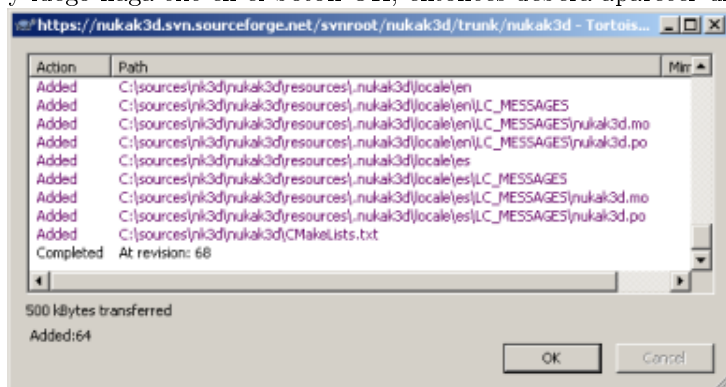- Localice el directorio donde pondra los archivos del codigo fuente

- Haga clic derecho sobre la carpeta nukak3d, aparecera un dialgo similar al este
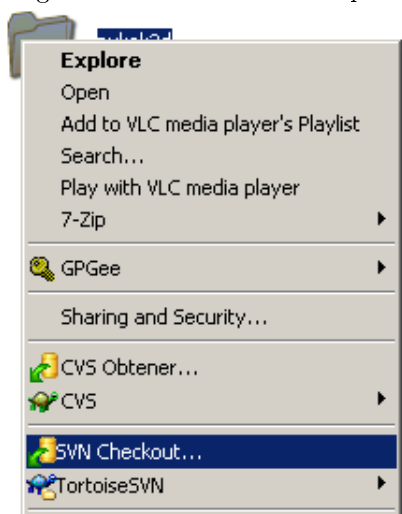
- Haga clic la opcion del menu **SVN Checkout**, que aparece en la figura de arriba, y debera aparecer un cuadro similar a este.


En el cuadro de texto que aparece abajo de la etiqueta **URL of repository:**, coloque la siguiente direccion

`https://nukak3d.svn.sourceforge.net/svnroot/nukak3d/trunk/nukak3d`

y luego haga clic en el boton OK, entonces debera aparecer un dialogo de progresso similar al siguiente.

Haga clic en OK, para finalizar.

- Luego de descargar el codigo fuente dentro del directorio **nukak3d**, debe usted visulizar un grupo de carpetas similares a estas
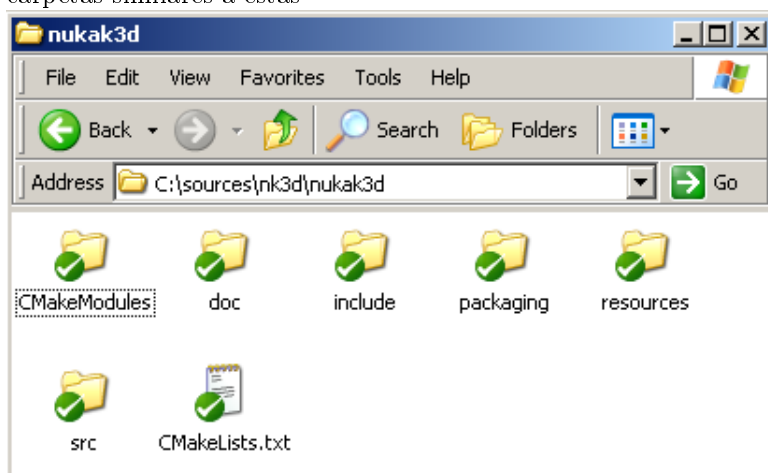
Chapter 3

Building Nukak3D on Linux

## 3.1 Introduction

bla bla bla command line blabla

3.2 Getting Sources

blalblalbal

3.2.1 Subversion Access in Linux with SubdiverSVN

Si ya tiene lista la estructura de directorios donde usted va a colocar el codigo fuente entonces, debe realizar estos pasos para obtener el codigo fuente del nukak3d mediante svn.

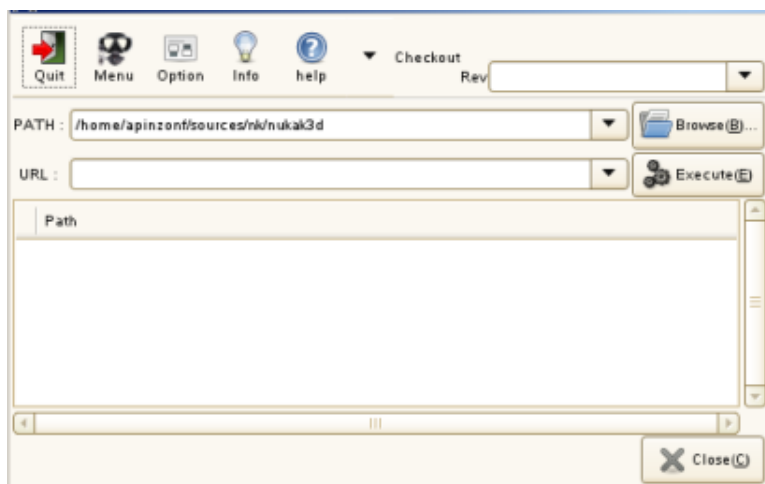- Localice el directorio donde pondra los archivos del codigo fuente
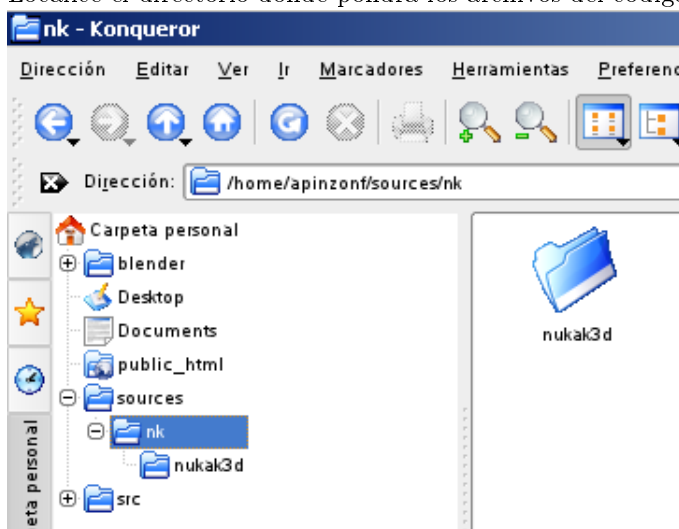
- Haga clic derecho sobre la carpeta nukak3d, aparecera un dialgo similar al este
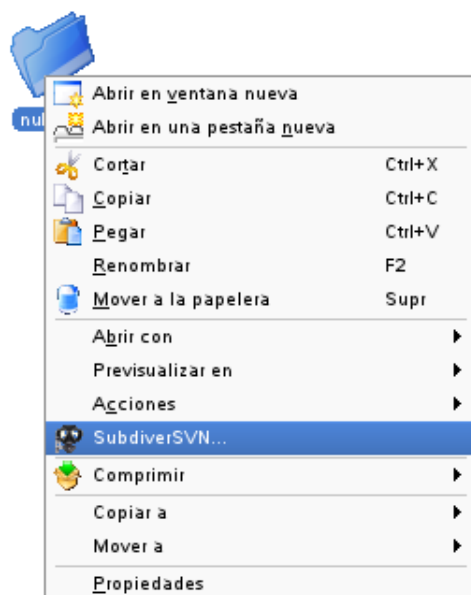
- Haga clic sobre la opcion **SubdiverSVN...**, entonces aparecera un dialogo similar a este


- Haga clic la opcion del menu **checkout**, que aparece en la figura de arriba, y debera aparecer un cuadro similar a este.

En el cuadro de texto que aparece al lado de la etiqueta **URL :**, coloque la siguiente direccion

`https://nukak3d.svn.sourceforge.net/svnroot/nukak3d/trunk/nukak3d`

y luego haga clic en el boton **Execute**, entonces debera aparecer un dialogo de progresso similar al siguiente.
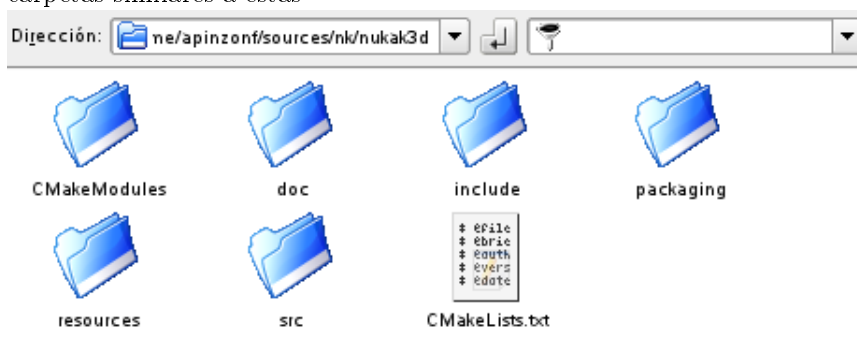

Al finalizar la descarga aparecera un dialigo similar al siguiente:
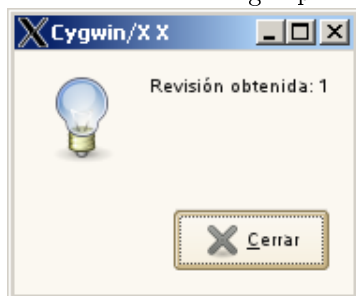
Haga clic en el boton **Cerrar**, para finalizar.

- Luego de descargar el codigo fuente dentro del directorio **nukak3d**, debe usted visualizar un grupo de carpetas similares a estas

3.2.2 Subversion Access in Linux in command line

Si ya tiene lista la estructura de directorios donde usted va a colocar el codigo fuente entonces, debe realizar estos pasos para obtener el codigo fuente del nukak3d mediante svn.

- Vaya al directorio donde descargara el Nukak3D

  ```
  $ cd /home/apinzonf/sources/nk/nukak3d/
  $ cd ..
  ```

- ejecute el siguiente comando

  ```
  $ svn co https://nukak3d.svn.sourceforge.net/svnroot/nukak3d nukak3d
  ```

- entonces debera aparecer un listado similar al siguiente.

  ```
  $ nukak3d/nukak3d/resources/nukak3d.ico A
  $ nukak3d/nukak3d/resources/mondrian.xpm A
  $ nukak3d/nukak3d/resources/CMakeLists.txt A
  $ nukak3d/nukak3d/resources/resource.h A
  $ nukak3d/nukak3d/resources/.nukak3d A
  $ nukak3d/nukak3d/resources/.nukak3d/locale A
  $ nukak3d/nukak3d/resources/.nukak3d/locale/en A
  $ nukak3d/nukak3d/resources/.nukak3d/locale/en/LC_MESSAGES A
  $ nukak3d/nukak3d/resources/.nukak3d/locale/en/LC_MESSAGES/nukak3d.mo A
  $ nukak3d/nukak3d/resources/.nukak3d/locale/en/LC_MESSAGES/nukak3d.po A
  $ nukak3d/nukak3d/resources/.nukak3d/locale/es A
  $ nukak3d/nukak3d/resources/.nukak3d/locale/es/LC_MESSAGES A
  $ nukak3d/nukak3d/resources/.nukak3d/locale/es/LC_MESSAGES/nukak3d.mo A
  $ nukak3d/nukak3d/resources/.nukak3d/locale/es/LC_MESSAGES/nukak3d.po A
  $ nukak3d/nukak3d/CMakeLists.txt
  $ Revisión obtenida: 68
  ```

- Luego de descargar el codigo fuente dentro del directorio **nukak3d**, debe usted visualizar un grupo de carpetas mediante el comando **ls**, y aparecera un listado similar a este.:

  ```
  $ ls -l
  $ total 32
  -rw-r--r-- 1 apinzonf users 6966 sep 17 13:43 CMakeLists.txt
  drwxr-xr-x 3 apinzonf users 4096 sep 17 13:43 CMakeModules
  drwxr-xr-x 3 apinzonf users 4096 sep 17 13:43 doc
  drwxr-xr-x 3 apinzonf users 4096 sep 17 13:43 include
  drwxr-xr-x 3 apinzonf users 4096 sep 17 13:43 packaging
  drwxr-xr-x 4 apinzonf users 4096 sep 17 13:43 resources
  drwxr-xr-x 3 apinzonf users 4096 sep 17 13:43 src
  ```