

Setting up a 64 bits C/Fortran/Python compiler and some useful libraries and tools on Microsoft Windows step by step

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Contents

1	Installing MSYS	2
2	Installing 7-Zip	13
3	Installing Git	21
4	Installing Microsoft MPI (optional)	26
5	Installing MinGW 64 bits compiler and some useful libraries and tools	32
6	Installing MiKTeX LaTeX (optional)	36
7	Installing Doxygen (optional)	42
8	Installing WinMerge (optional)	48
9	Installing GNUPlot (optional)	56
10	Installing Subversion (optional)	65
11	Installing Eclipse (optional)	71

SORRY! I have only a spanish license of Windows 7¹. Therefore, some figures have spanish texts.

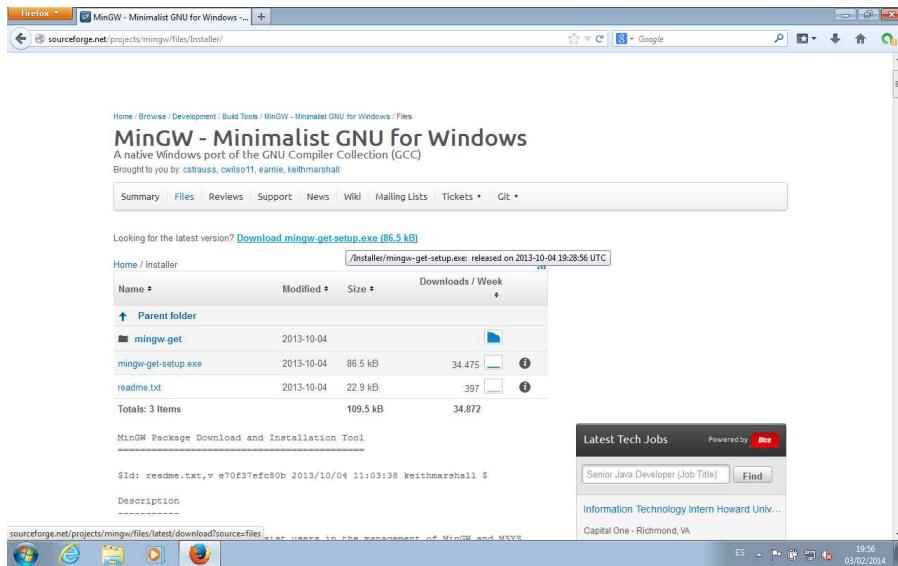
Most of patches used in this project are extracted from:
<https://github.com/Alexpu>

¹Windows 7 is a registered trademark of Microsoft Corporation

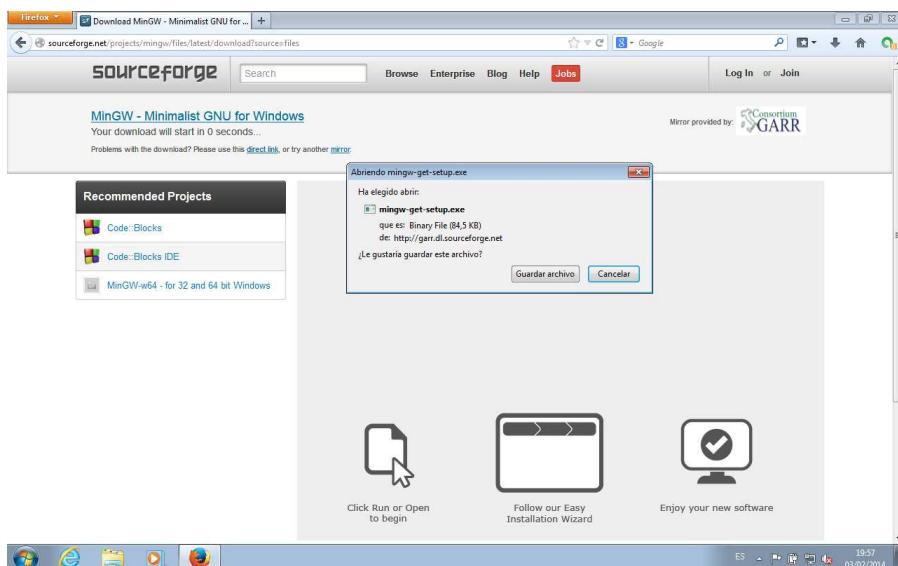
1 Installing MSYS

MSYS is a minimal Unix terminal emulator running over the Microsoft Windows. In this section we install and we do a direct access on the desktop.

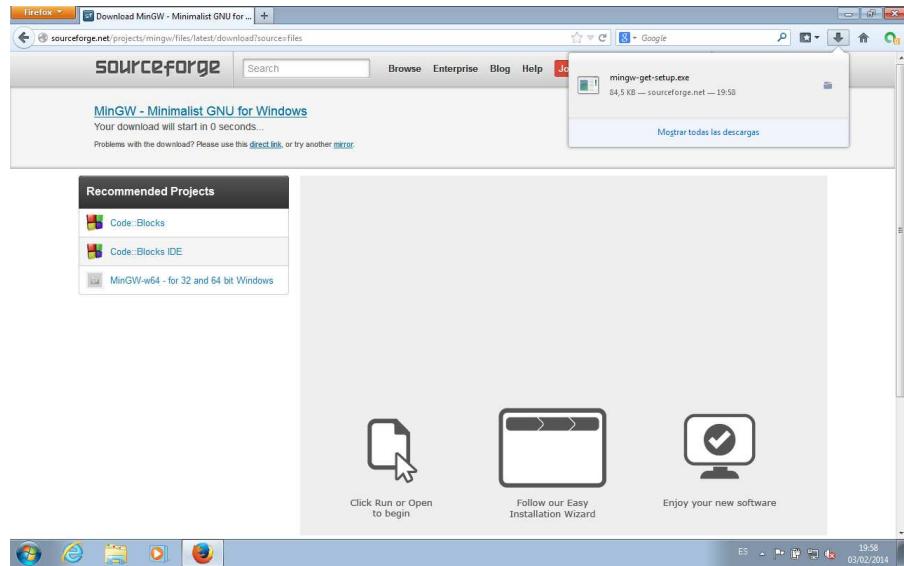
1. Download MSYS/MinGW installer (file mingw-get-setup.exe) on
<http://sourceforge.net/projects/mingw/files/Instaler/>



2. Click on **Save file** button



3. Click on the downloaded mingw-get-setup.exe installer



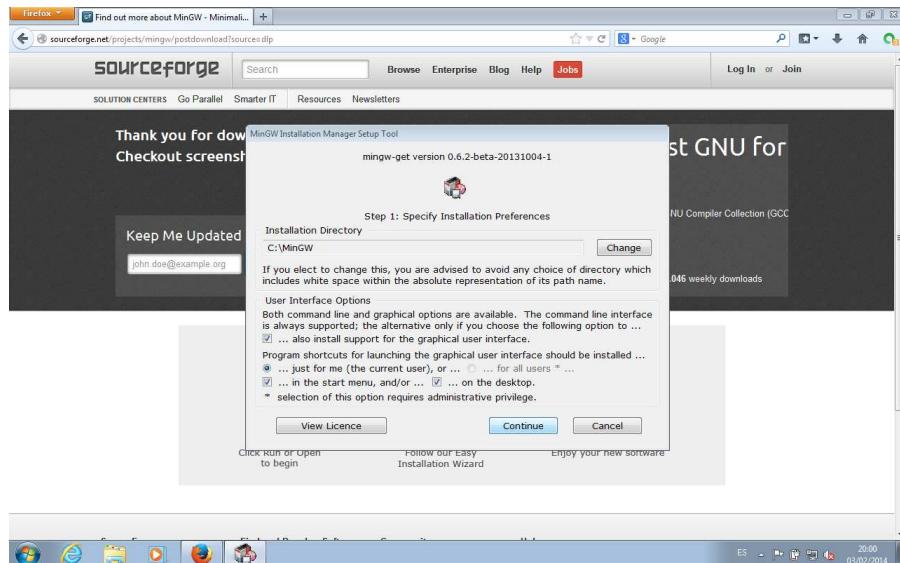
4. Click on the Execute button



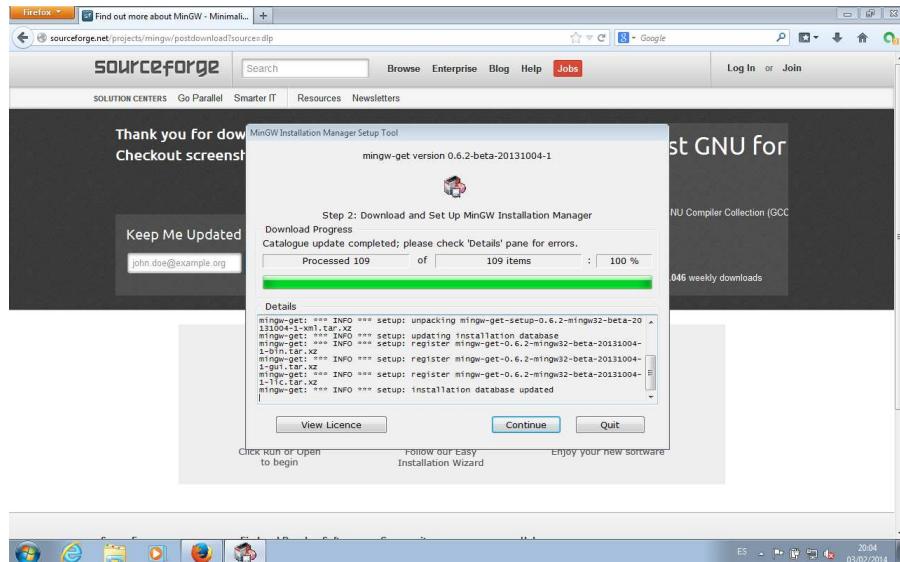
5. Click on the **Install** button



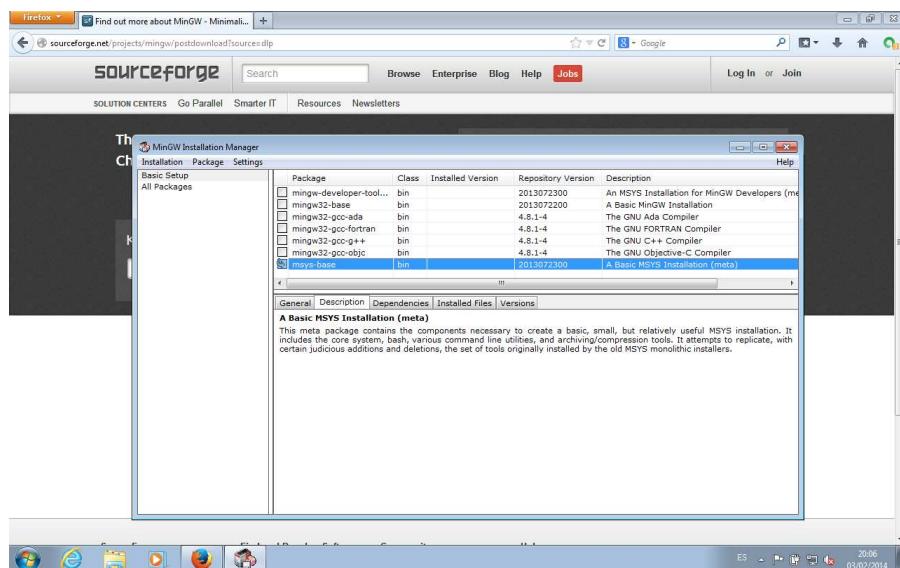
6. Click on the **Continue** button (WARNING! if you change the instalation directory you must change the /etc/fstab file on the MSYS system to work properly)



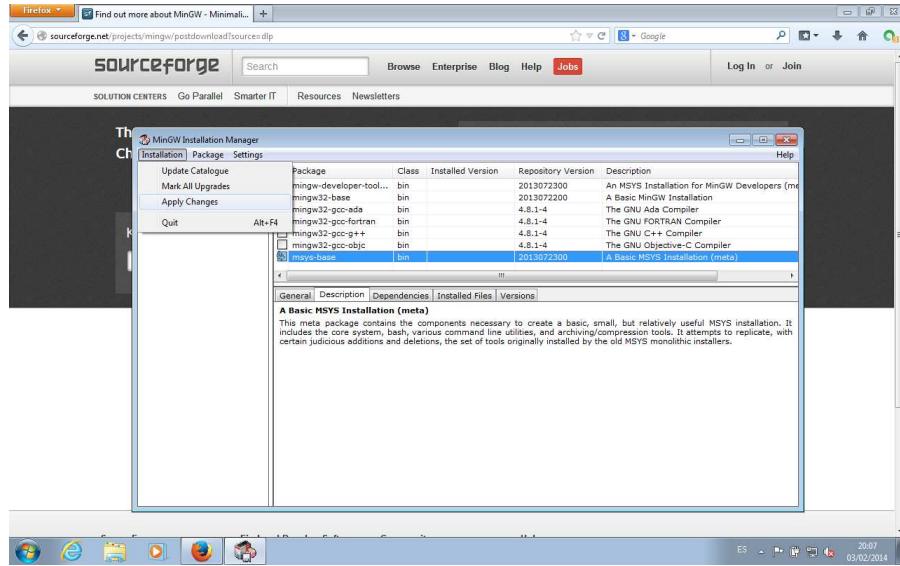
7. Click on the **Continue** button



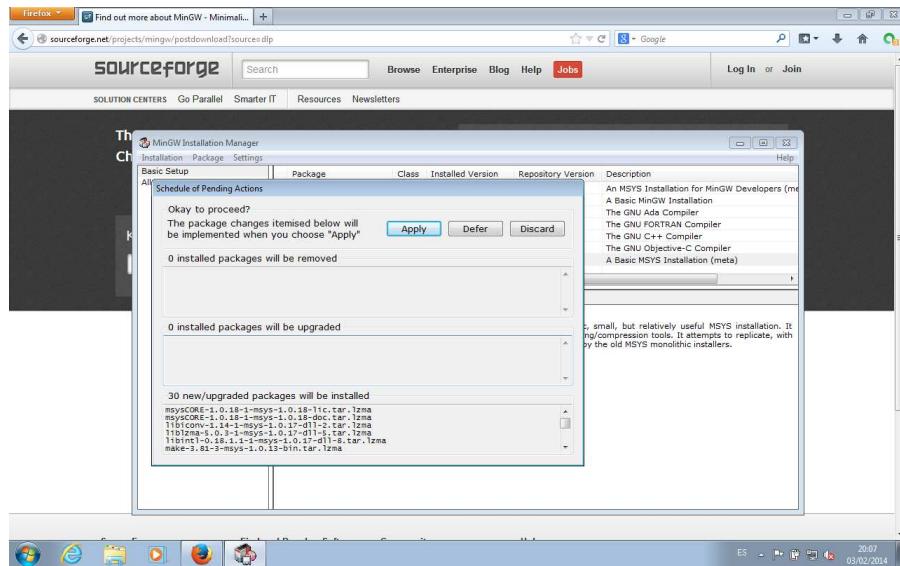
8. Click only on the **msys-base** option (other options install 32 bits compilers that can interfere the 64 bits compilations)



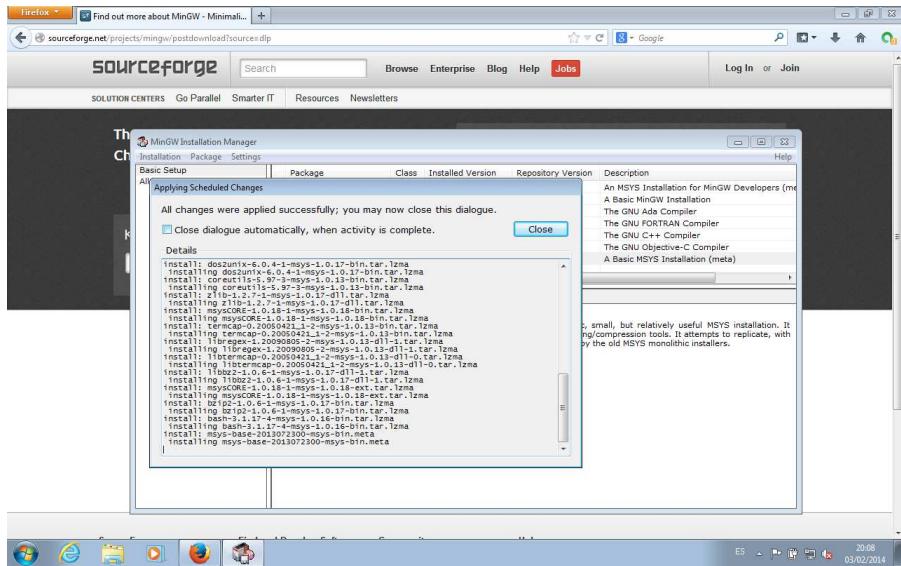
9. Click on the **Apply Changes** menu option



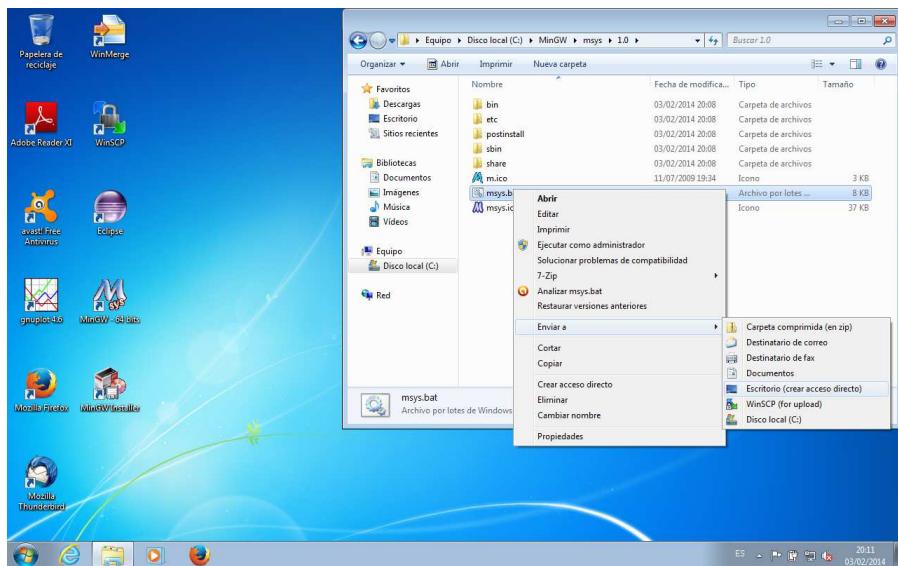
10. Click on the **Apply** button



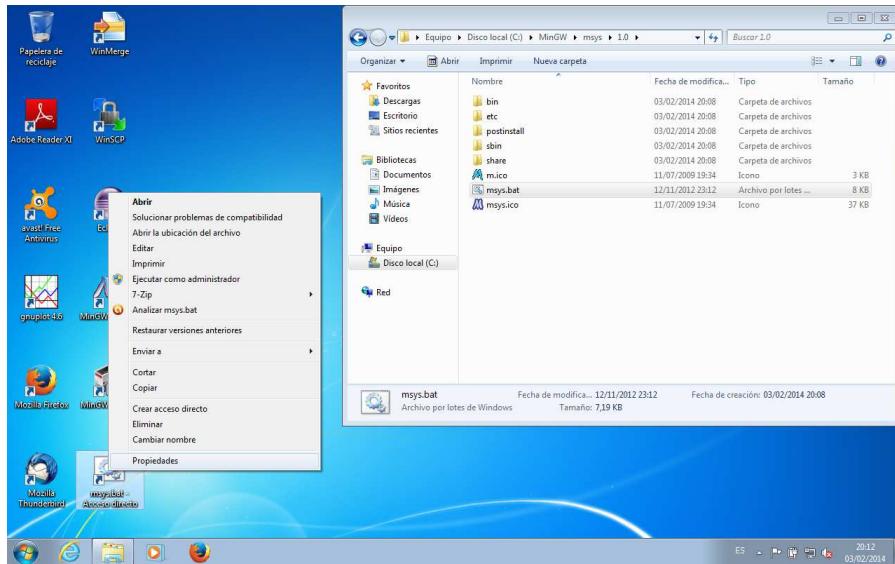
- Click on the **Close** button



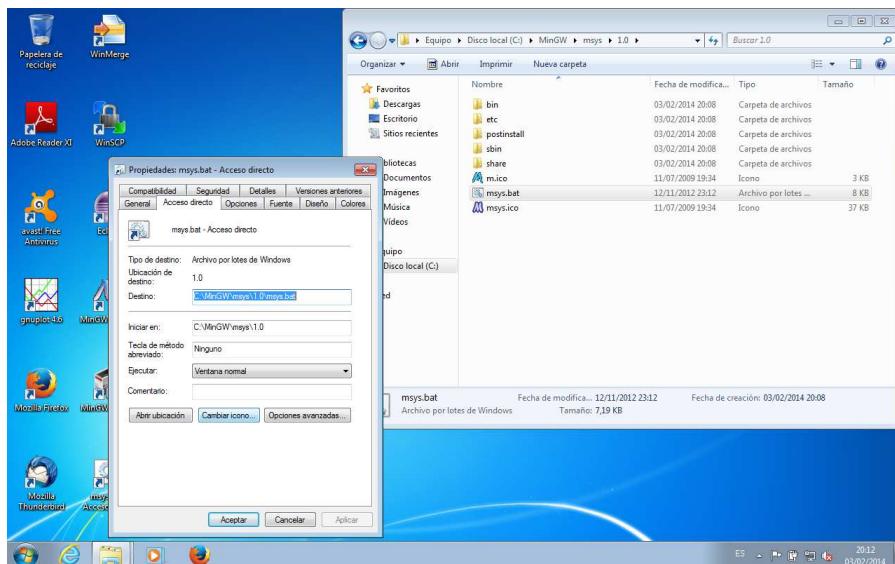
- Create a direct access of the **C:\MinGW\msys\1.0\msys.bat** file sending it to the desktop



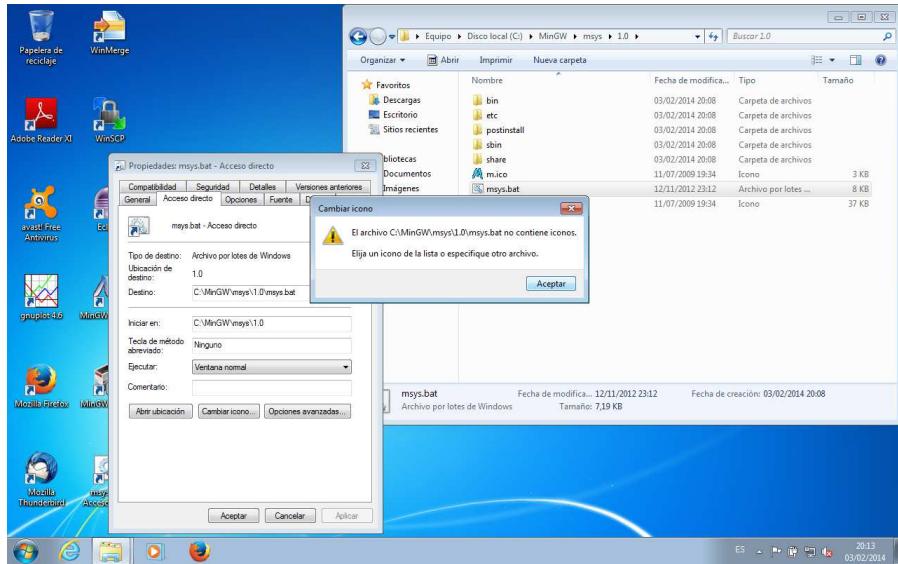
13. Select the new direct access and clicking on the right button and click on the **Properties** menu option



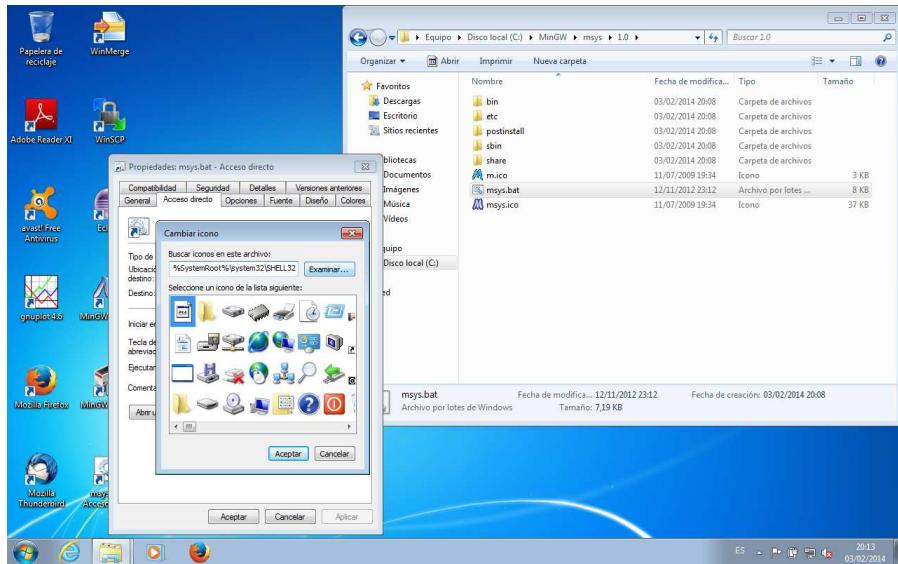
14. Click on the **Change icon** button



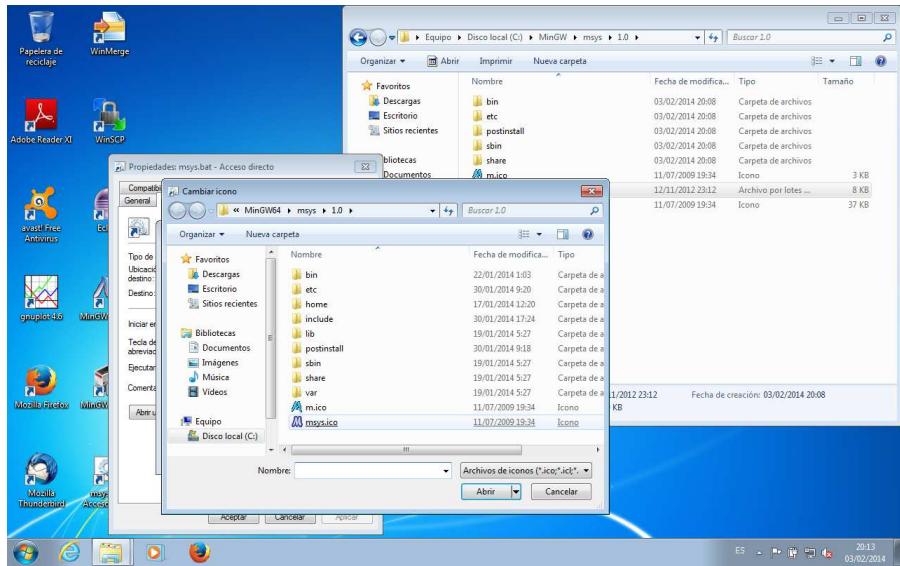
15. Click on the **Accept** button



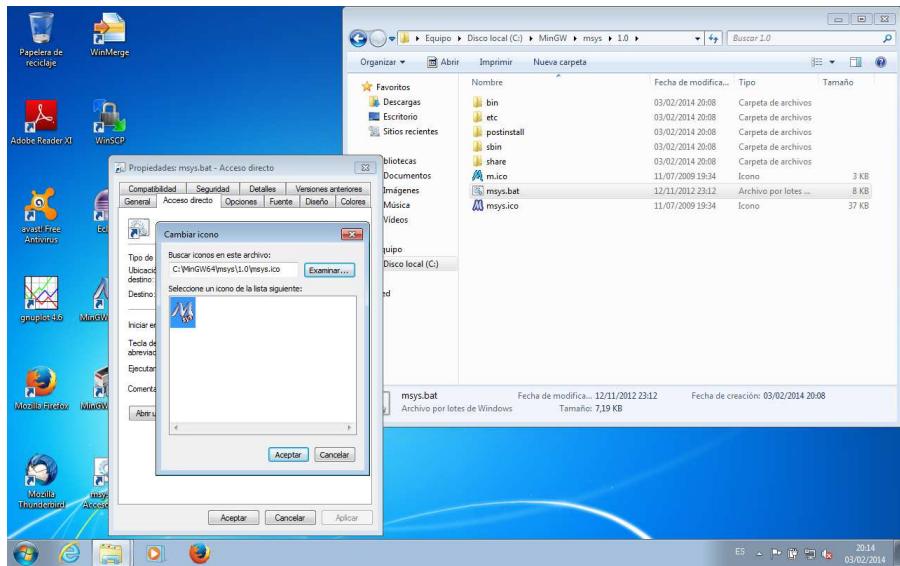
16. Click on the **Check** button



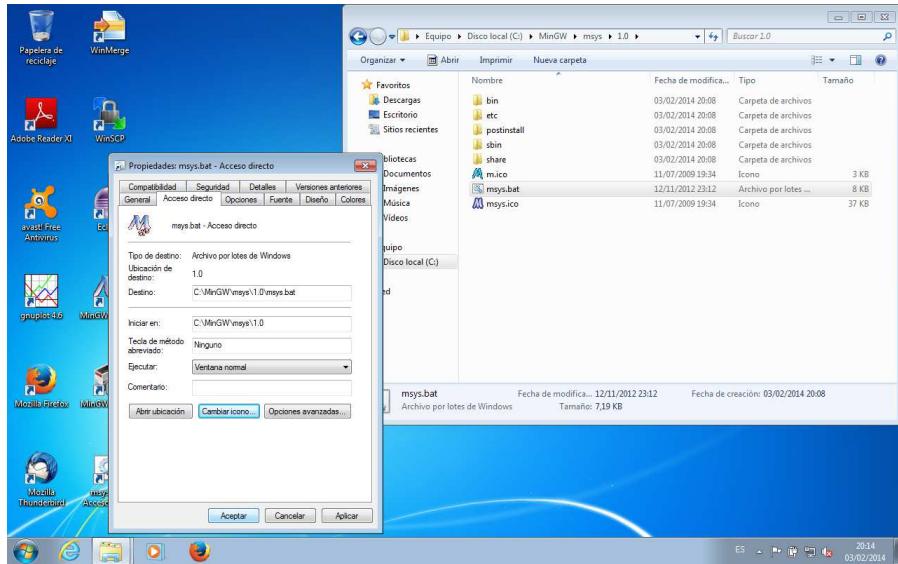
17. Select the C:\MinGW\msys\1.0\msys.ico (or C:\MinGW\msys\1.0\m.ico) file and click on the **Accept** button



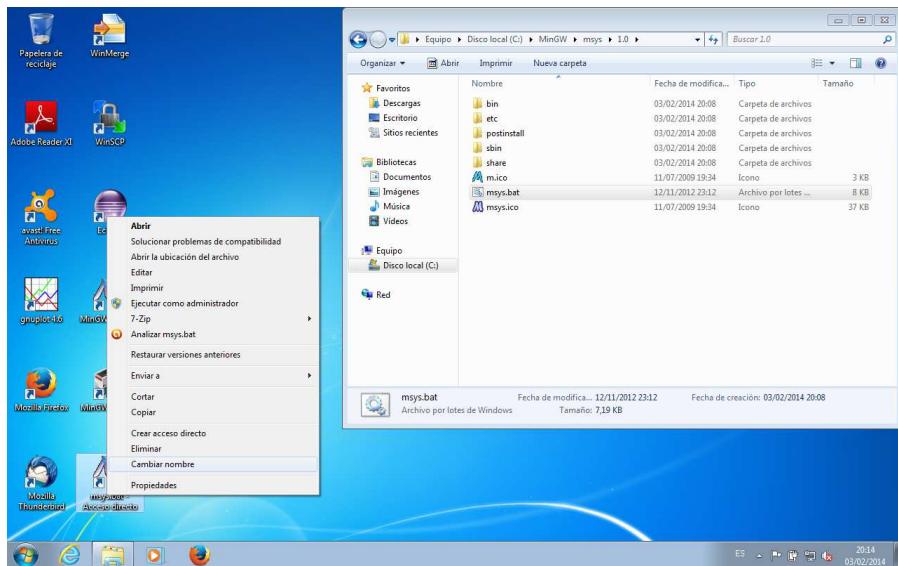
18. Select the icon and click on the **Accept** button



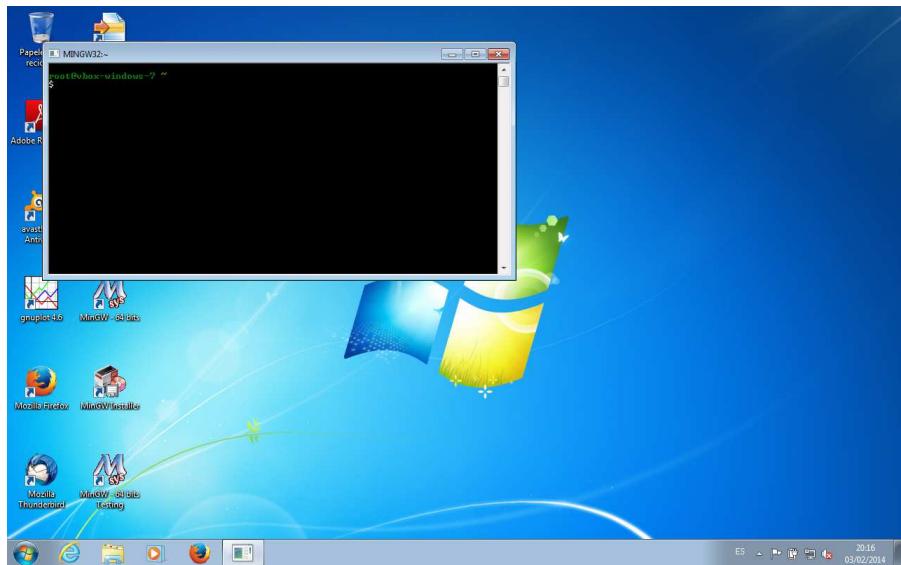
19. Click on the **Accept** button



20. Select the direct access clicking on the right button and click on the **Renomear** menu option. Then change the label (i.e. MinGW 64 bits)



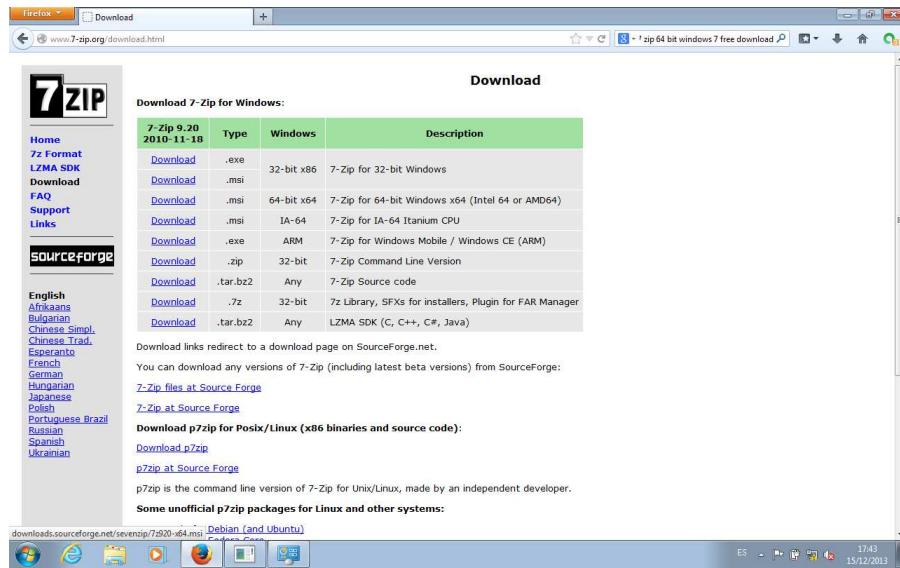
21. Click on the direct access button and you have a MSYS (minimal Unix) terminal



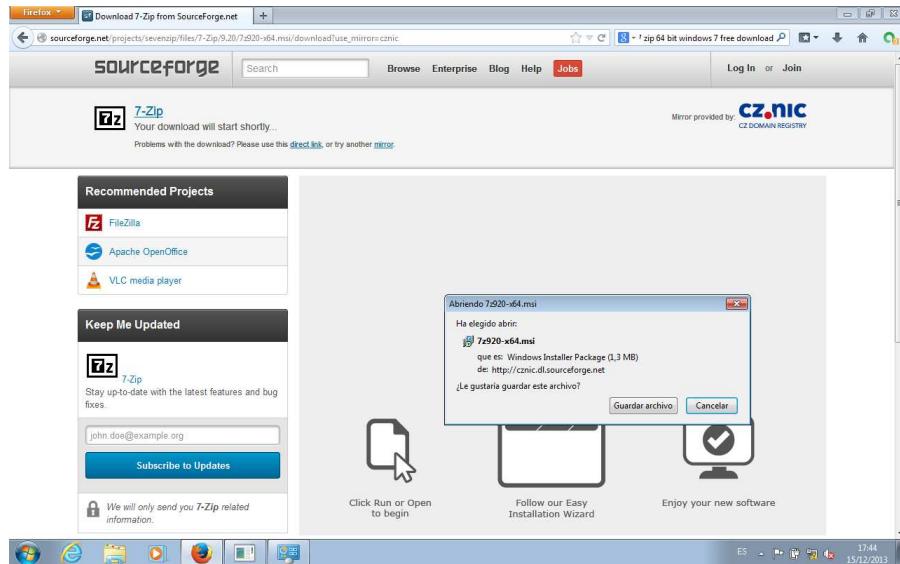
2 Installing 7-Zip

7-Zip is a files compressor required to install the MinGW 64 bits compiler. In this section the program is installed and configured to be accessible in the MSYS terminal.

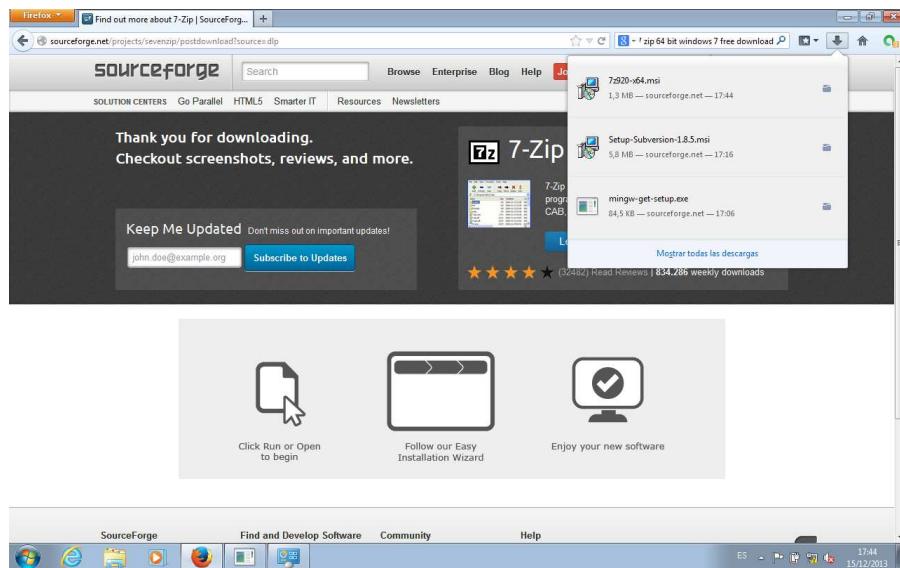
1. Download the 7-Zip 64 bits installer ([.msi 64-bit x64](http://www.7-zip.org/download.html)) on
<http://www.7-zip.org/download.html>



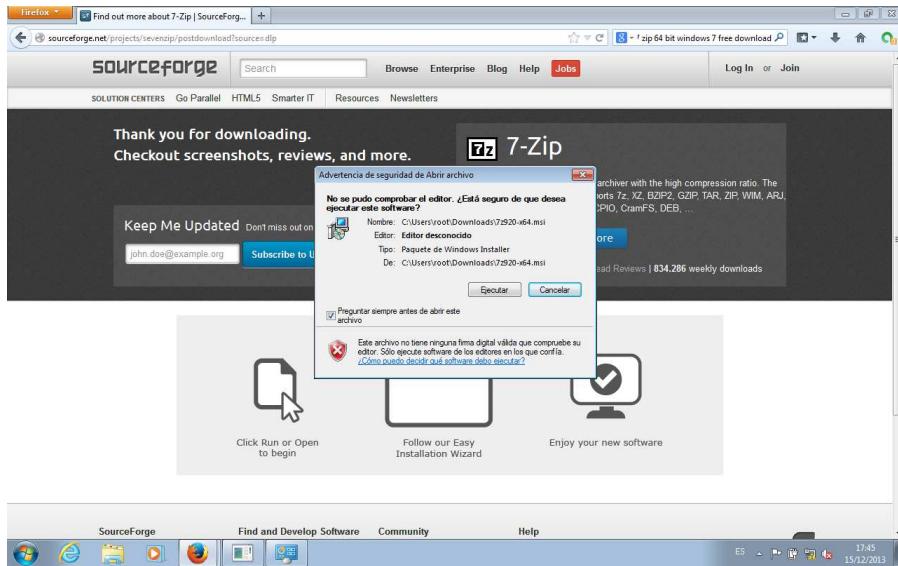
2. Click on **Save file** button



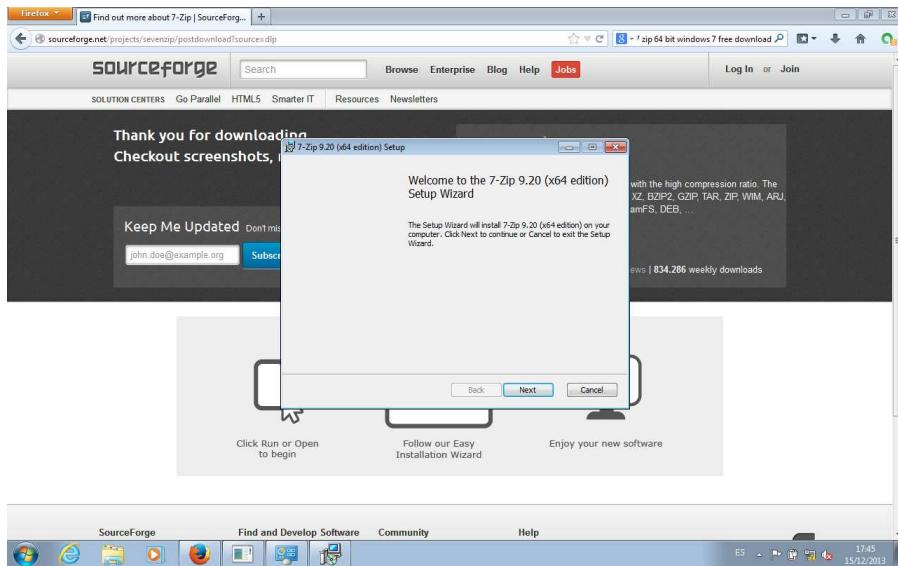
3. Click on the downloaded installer (**7z920-x64.msi** is the last version at the date to make this tutorial)



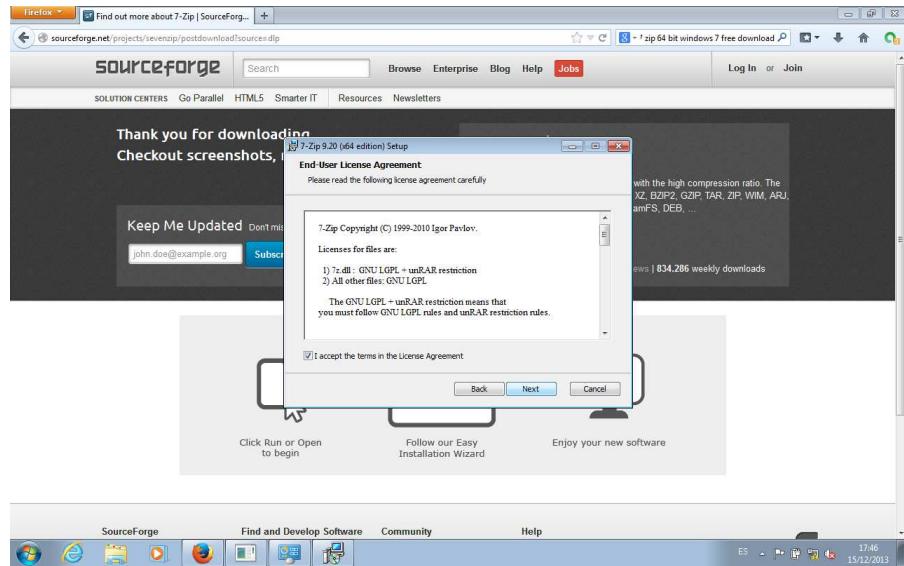
4. Click on the **Execute** button



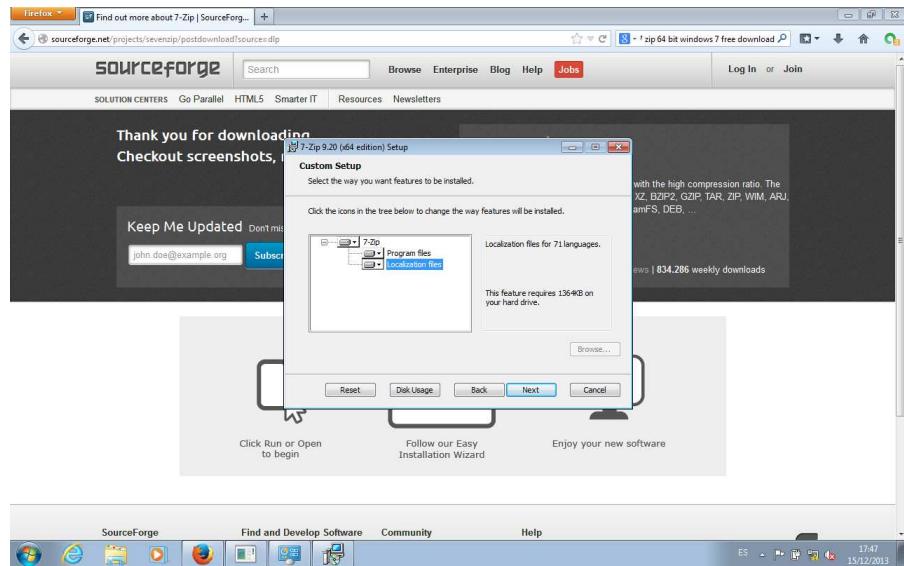
5. Click on the **Next** button



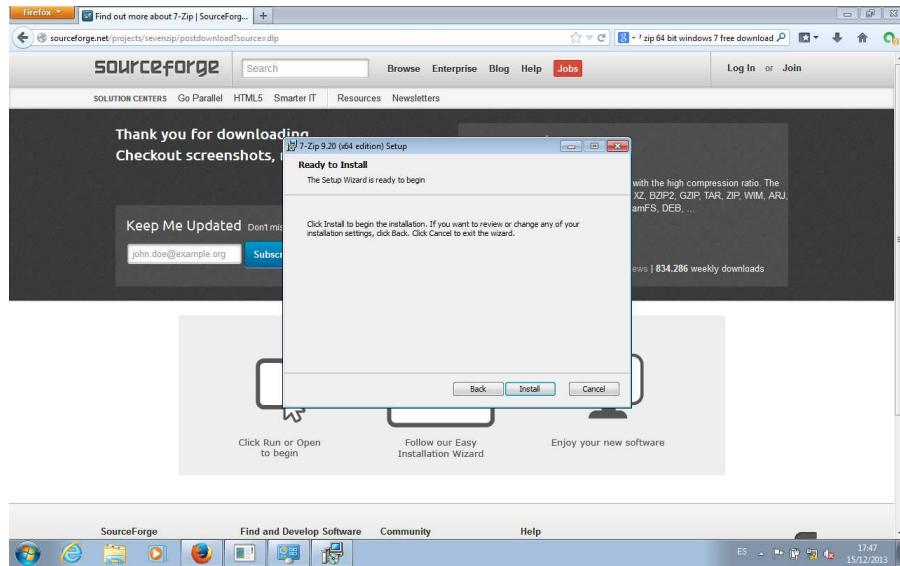
6. Accept the license and click on the **Next** button



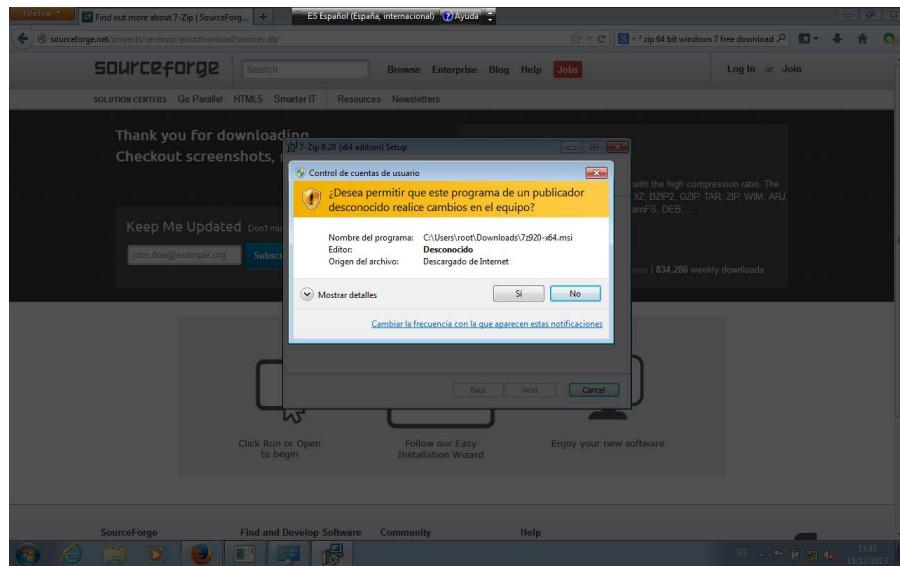
7. Customize the localization files and click on the **Next** button



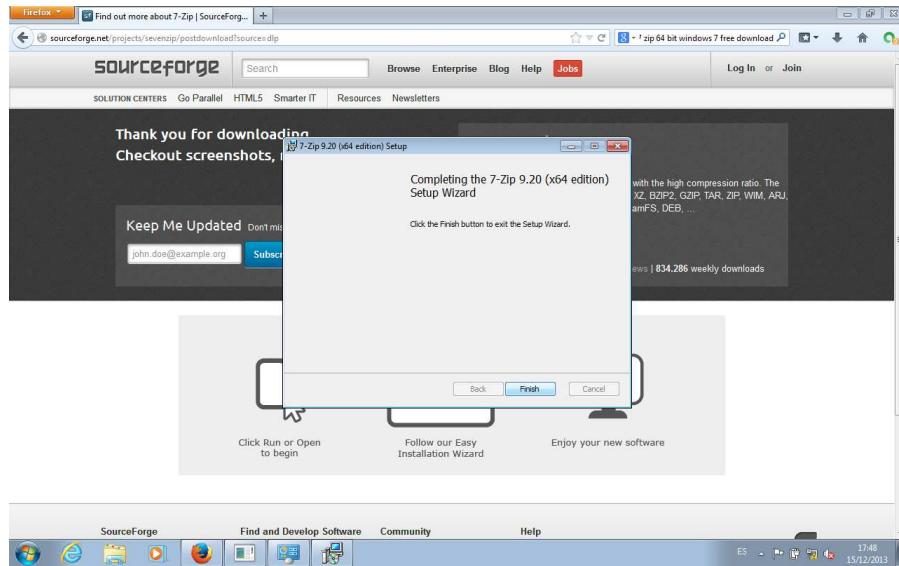
8. Click on the **Install** button



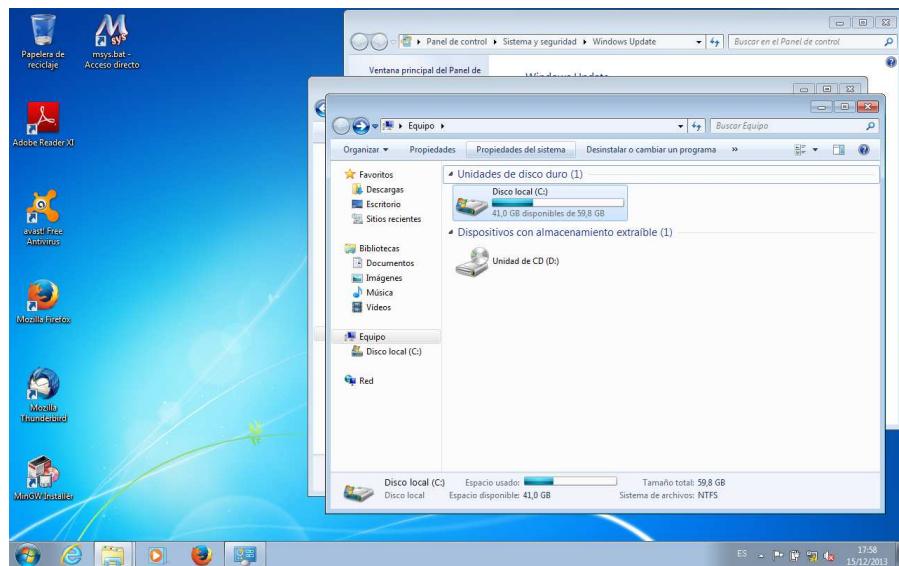
9. Click on the **Yes** button



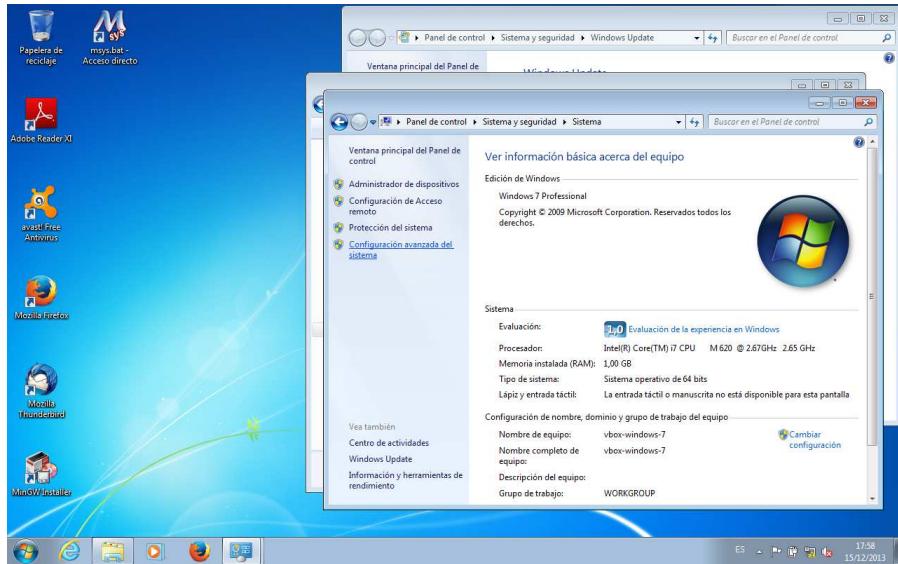
10. Click on the **Finish** button



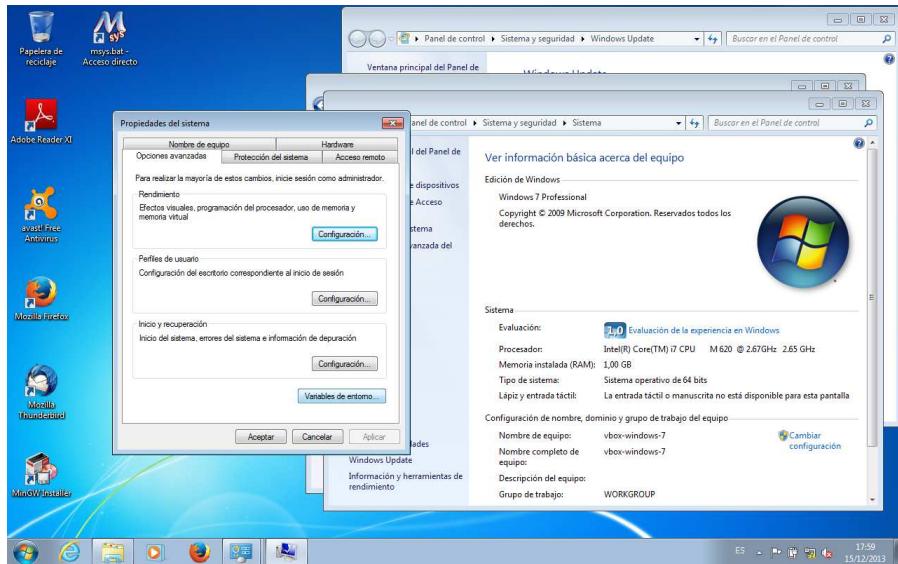
11. Go to **Computer** on the main menu and click on the **System properties** menu bar option



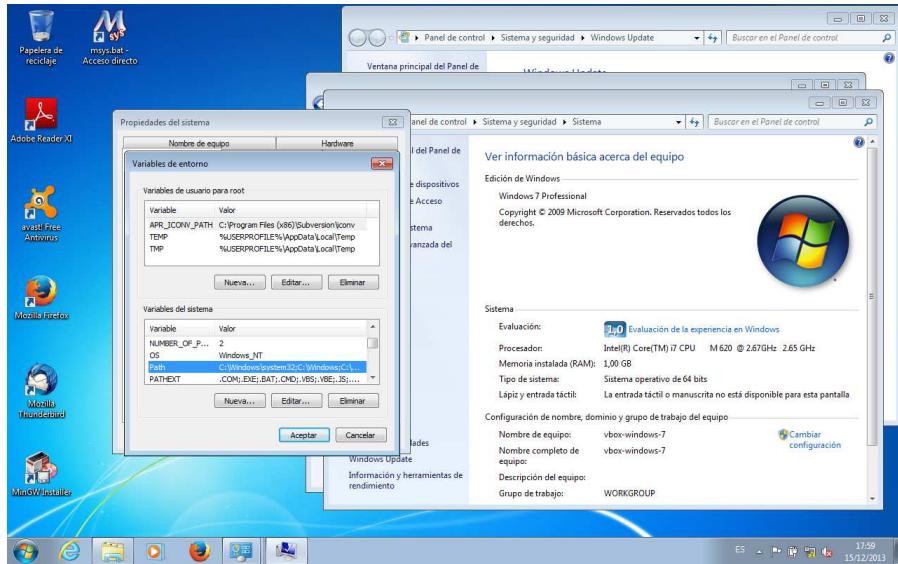
12. Click on the **Advanced system configuration** option



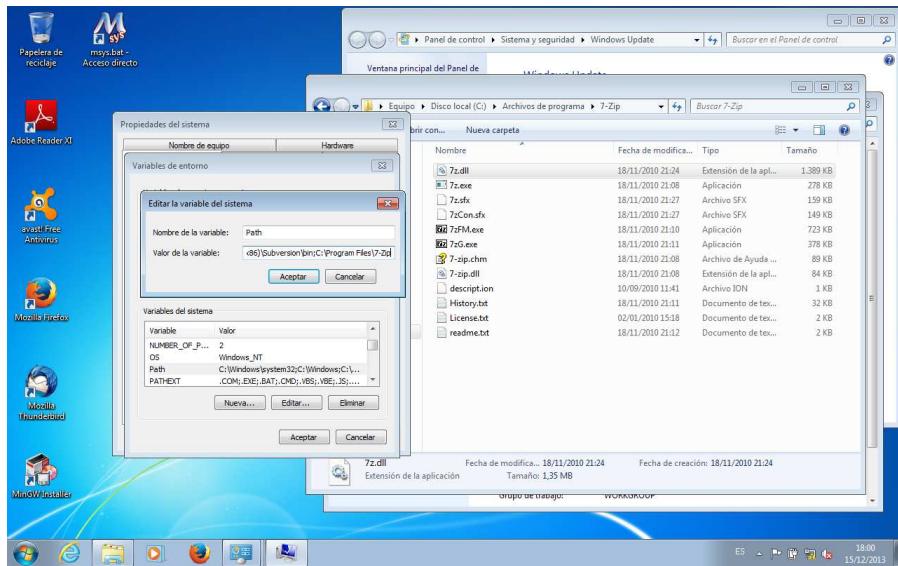
13. Click on the **Environment variables** button



14. Select Path on the System variables and click on the Edit... button



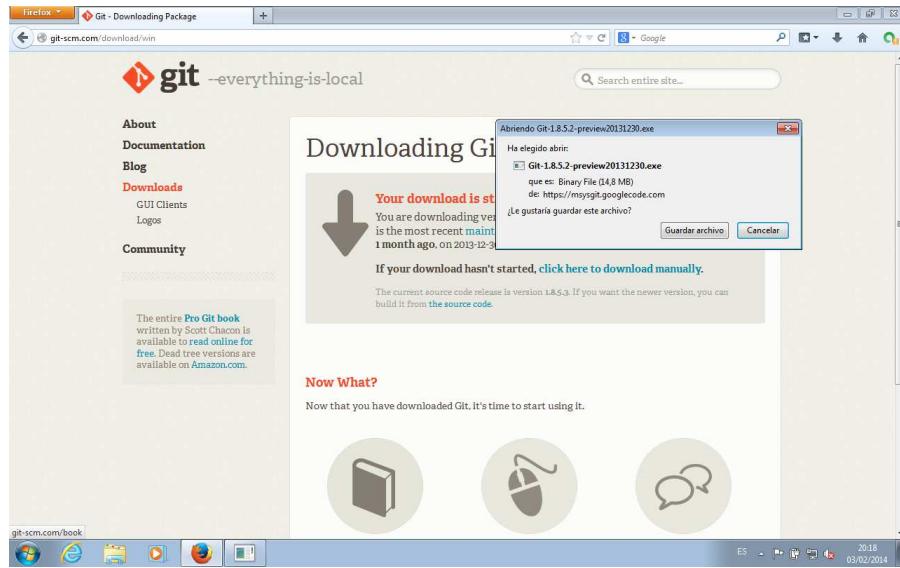
15. Append with a semicolon the path where the 7-Zip program has been installed (in this case C:\Program Files\7-Zip) and click on the Accept buttons



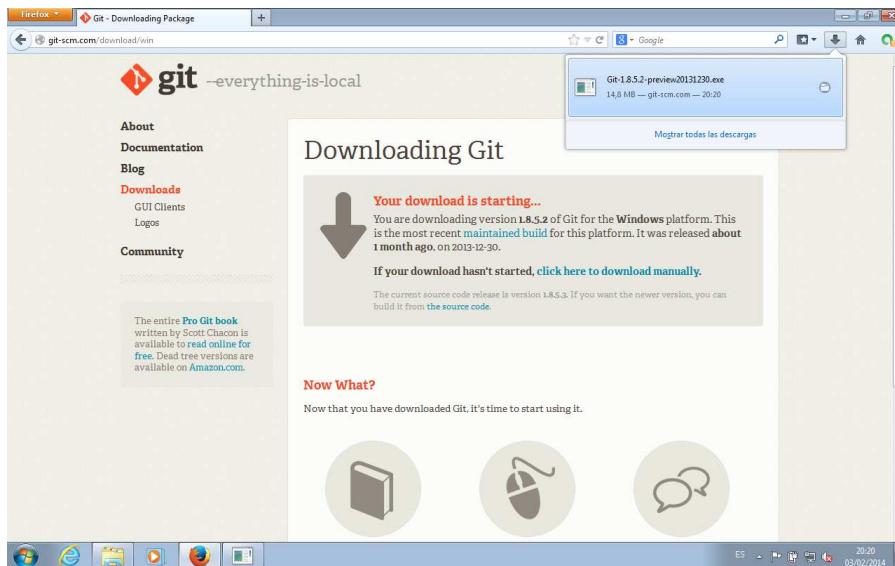
3 Installing Git

Git is a distributed revision control and source code management. In this section we install and configure it to be accessible in the MSYS terminal.

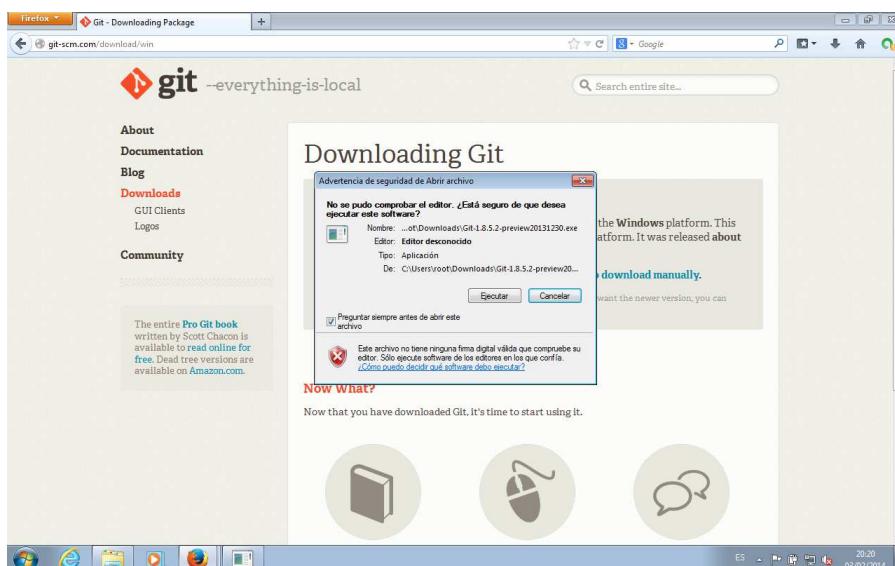
1. Download the Git installer on <http://git-scm.com/download/win> and click on **Save file** button



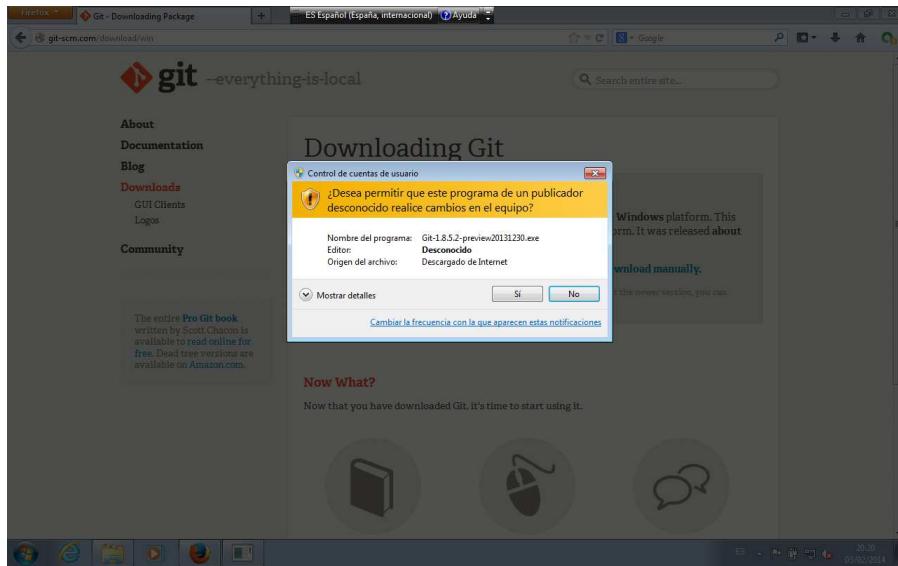
- Click on the downloaded installer ([Git-1.8.5.2-preview20131230.exe](#) is the last version at the date to make this tutorial)



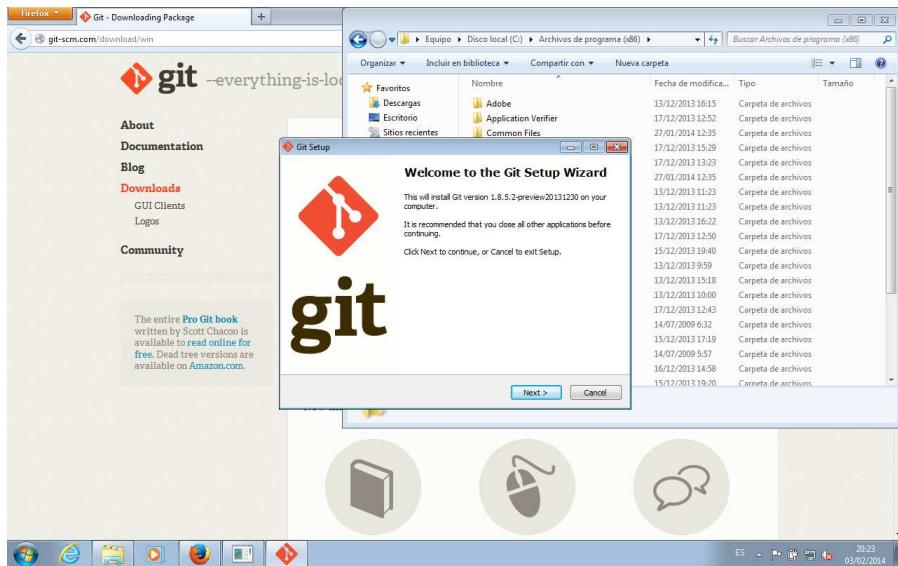
- Click on the Execute button



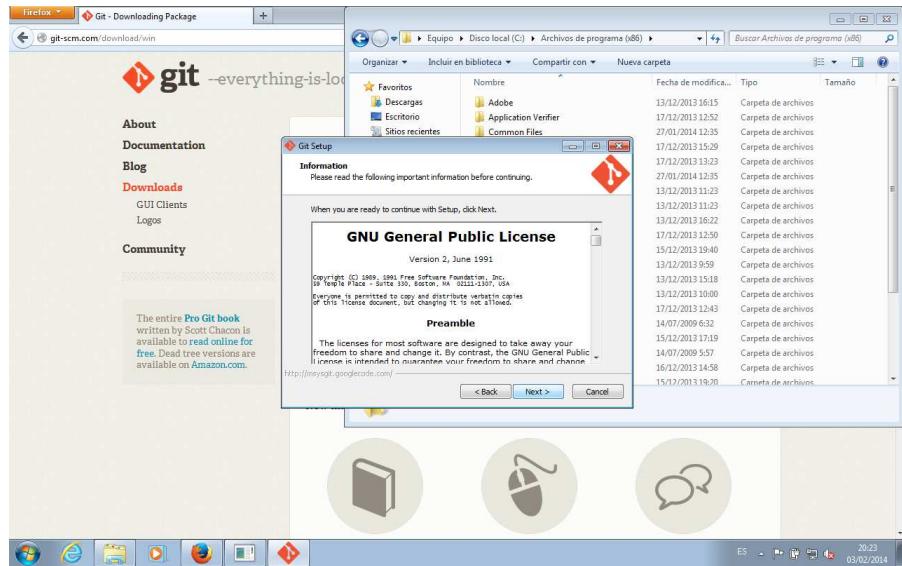
4. Click on the Yes button



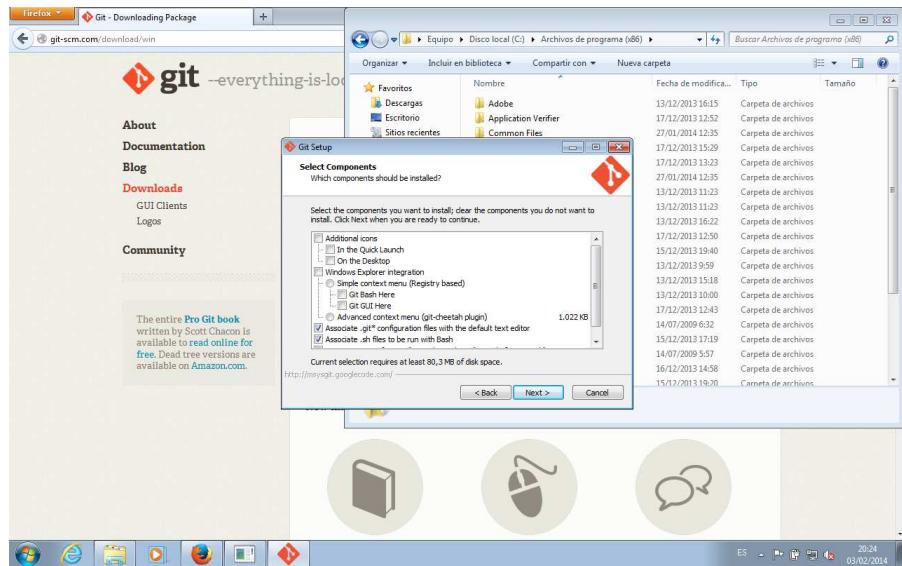
5. Click on the Next button



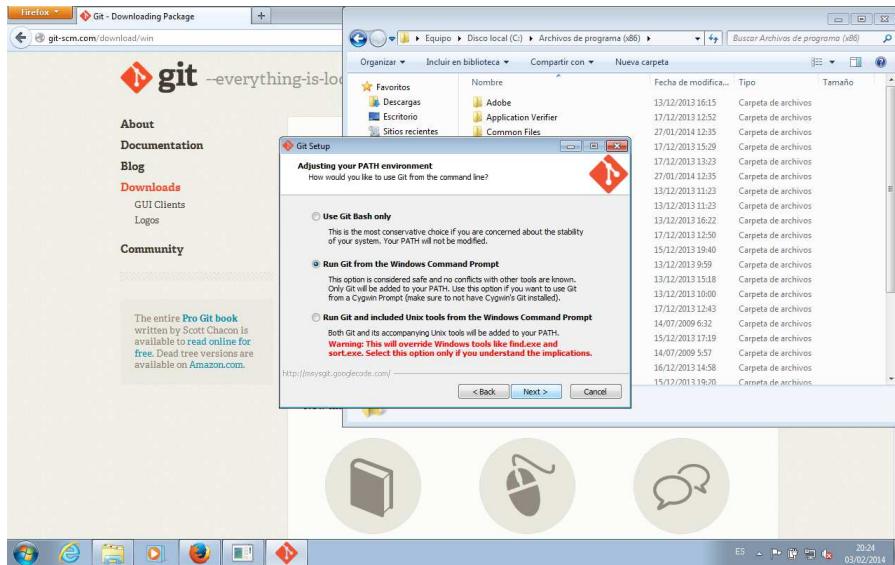
6. Click on the **Next** button



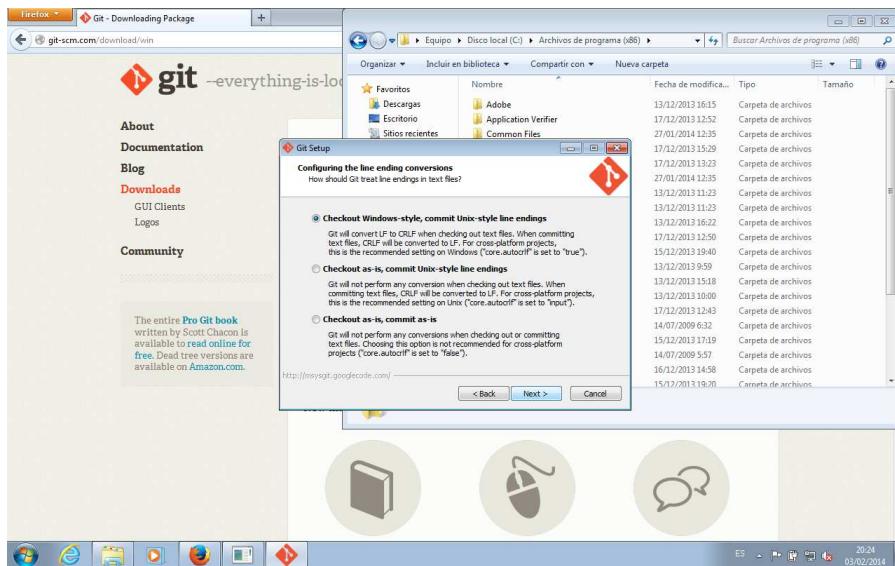
7. Select the components to install (we use the default) and click on the **Next** button



8. Select the Run Git from the Windows Command Prompt option and click on the Next button



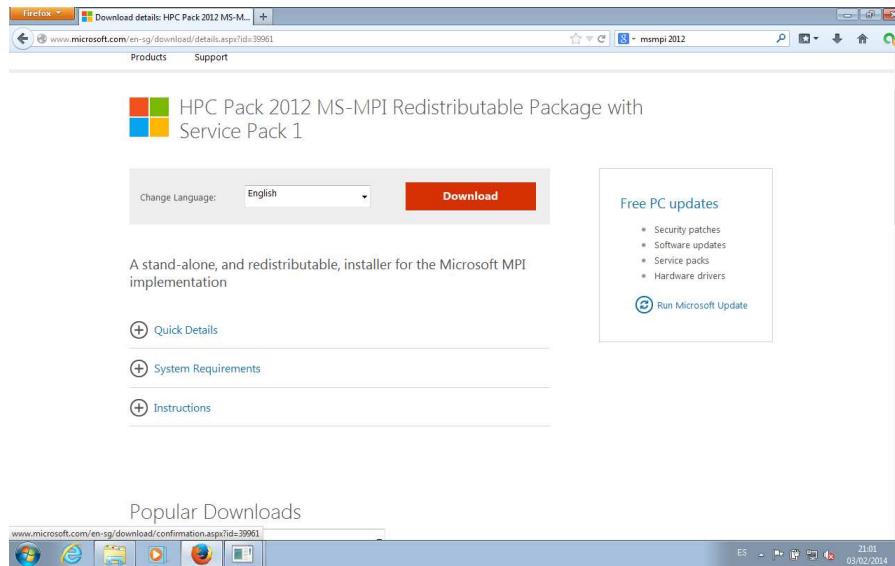
9. Select the Checkout Windows-style, commit Unix-style line endings option and click on the Next button



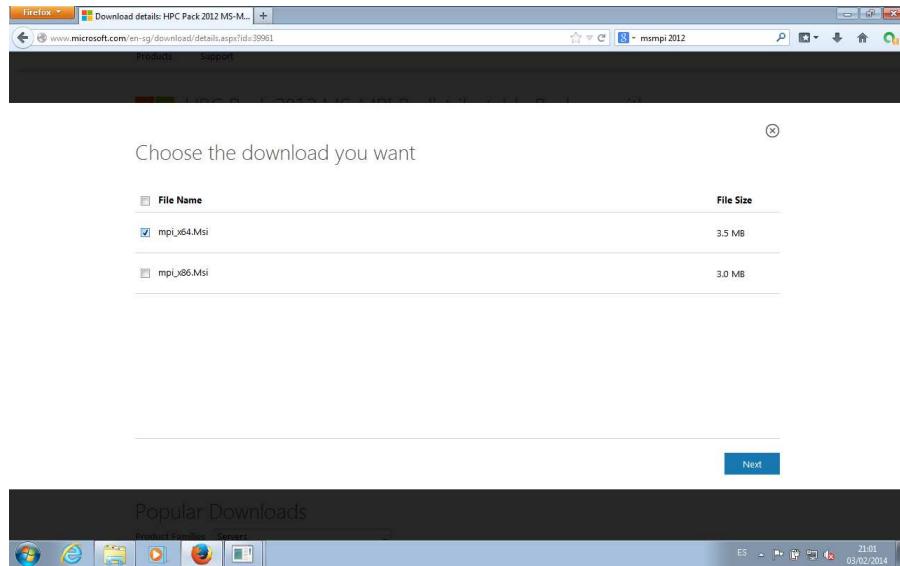
4 Installing Microsoft MPI (optional)

Microsoft MPI is an implementation of the Message Passing Interface standard for developing and running parallel applications. This step is not strictly necessary. To install it:

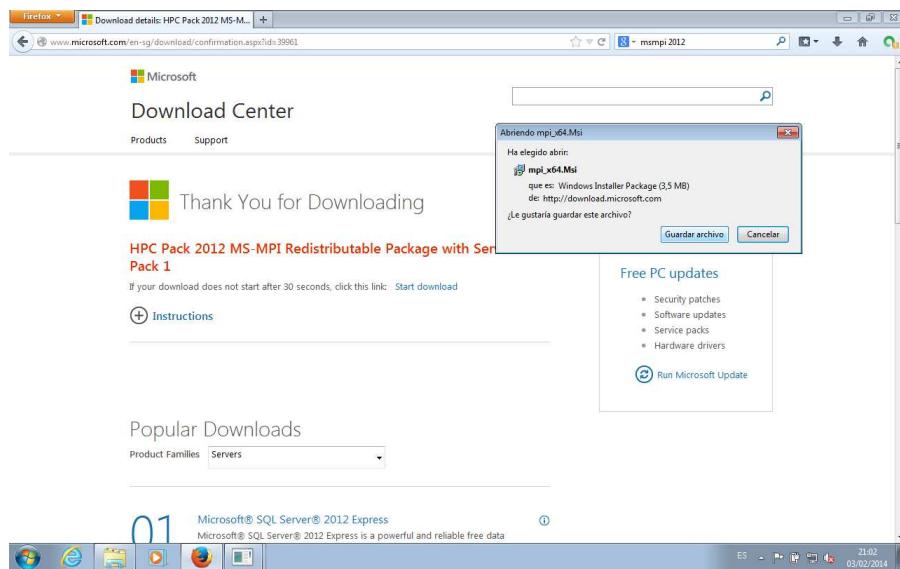
1. Download it clicking in the **Download** button from
<http://www.microsoft.com/en-sg/download/details.aspx?id=39961>



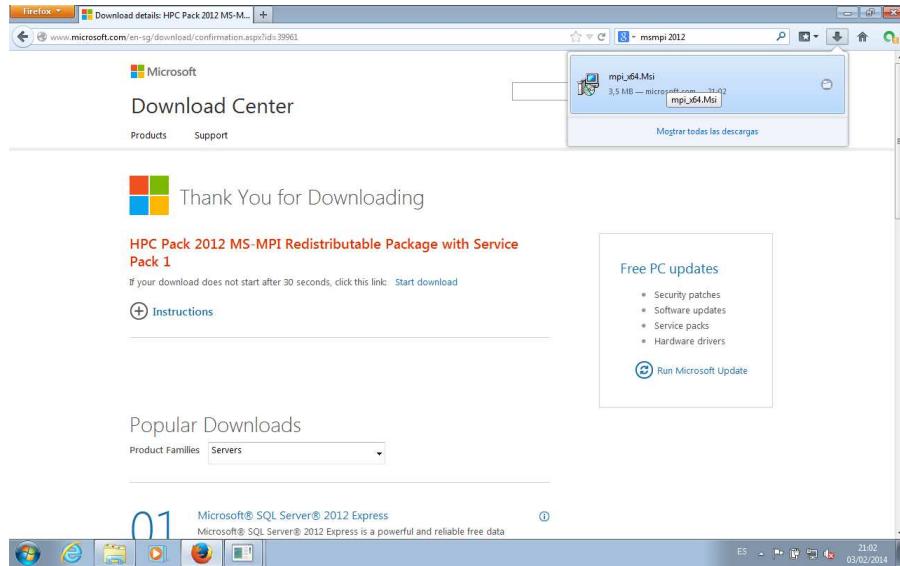
2. Select the correct option ([msmpi_x86.msi](#) for 32 bits and [msmpi_x64.msi](#) for 64 bits) and click on the **Next** button



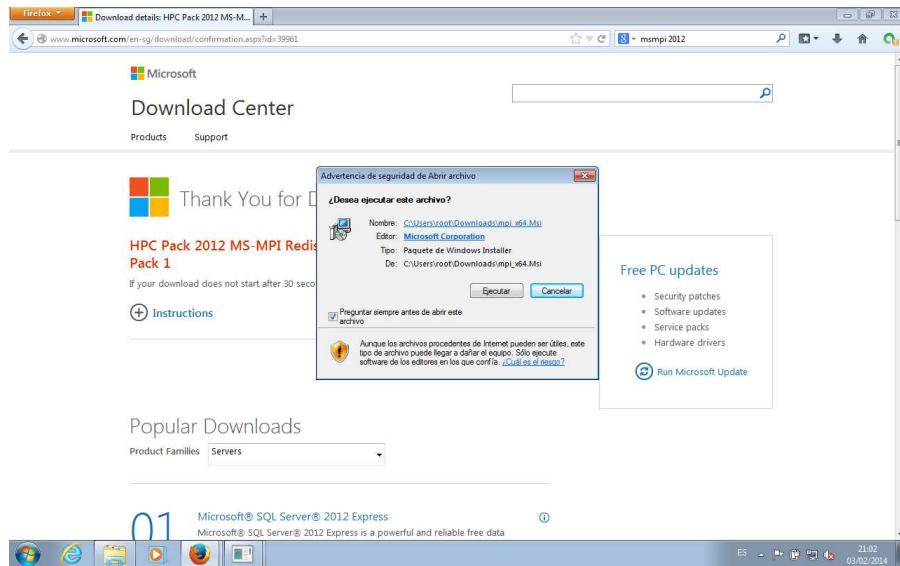
3. Click on the **Save file** button



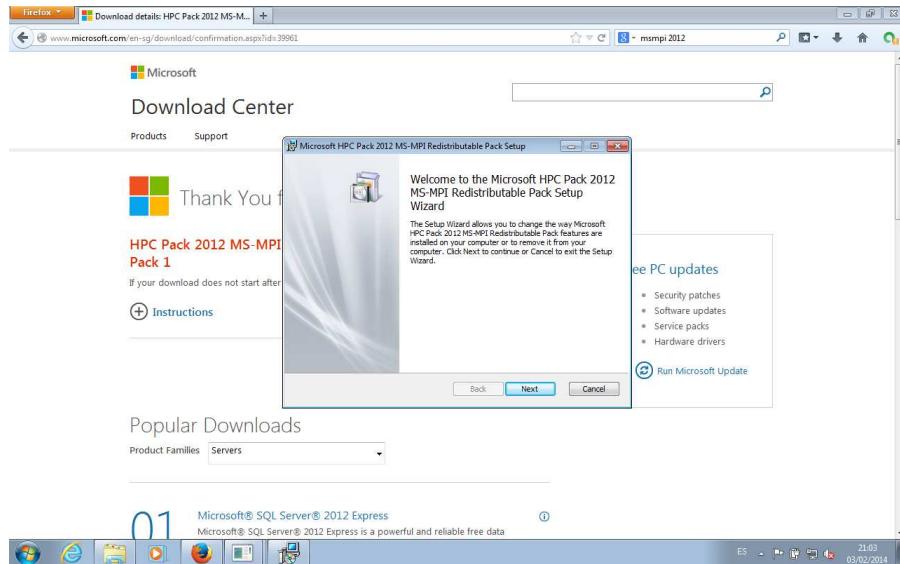
4. Click on the downloaded installer (msmpi-x64.msi)



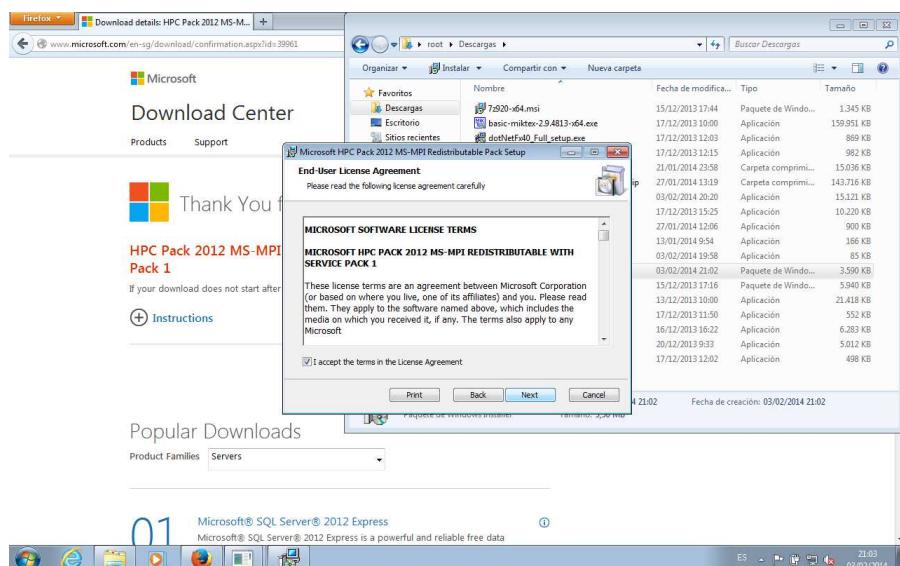
5. Click on the Execute button



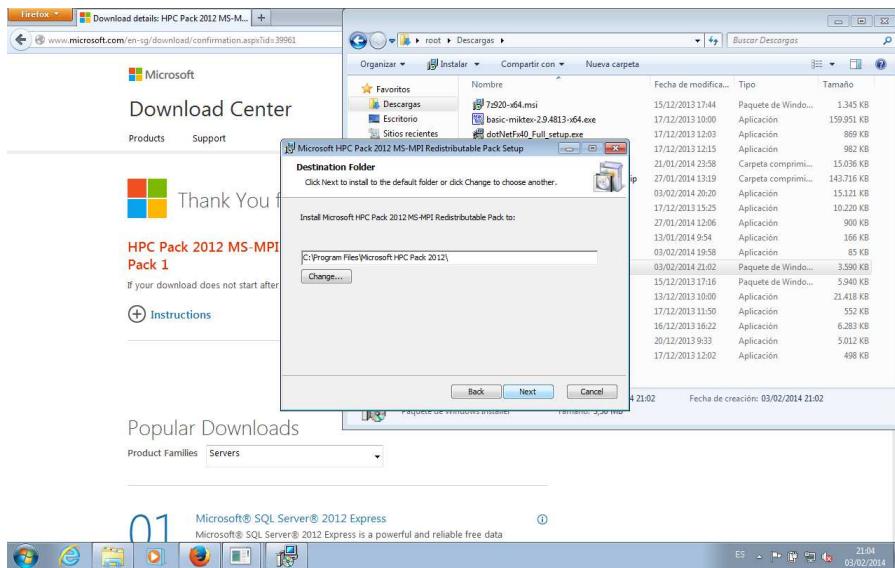
6. Click on the **Next** button



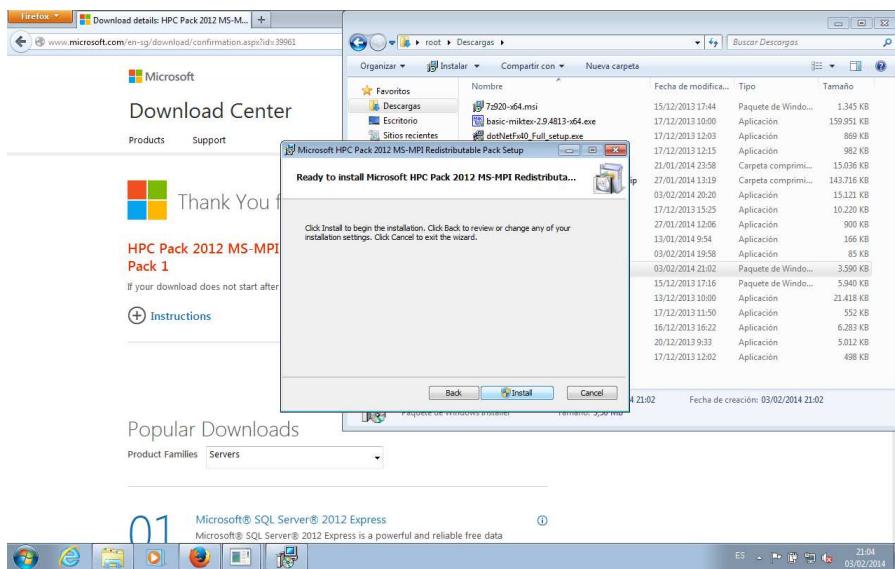
7. Accept the license and click on the **Next** button



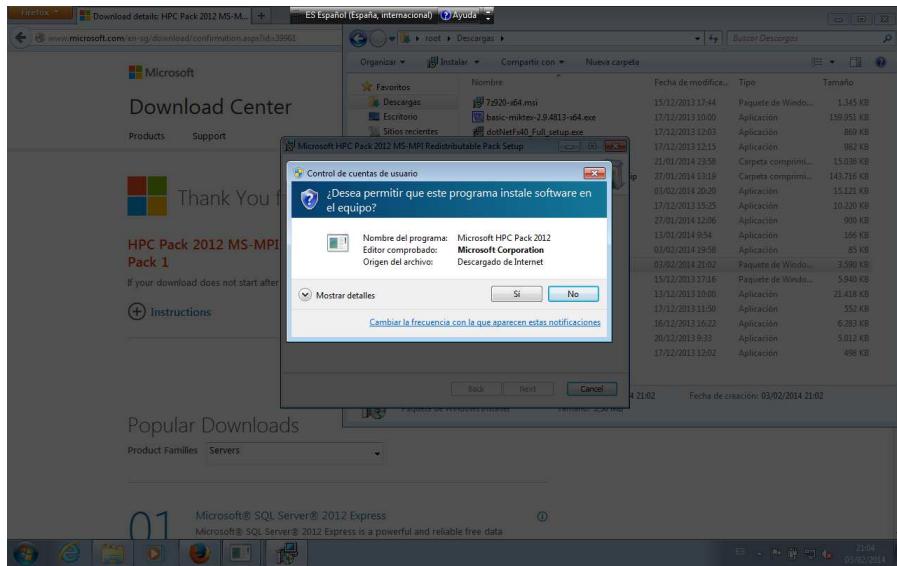
- Click on the **Next** button (WARNING! if you change the instalation directory you will must change the makefile to work properly)



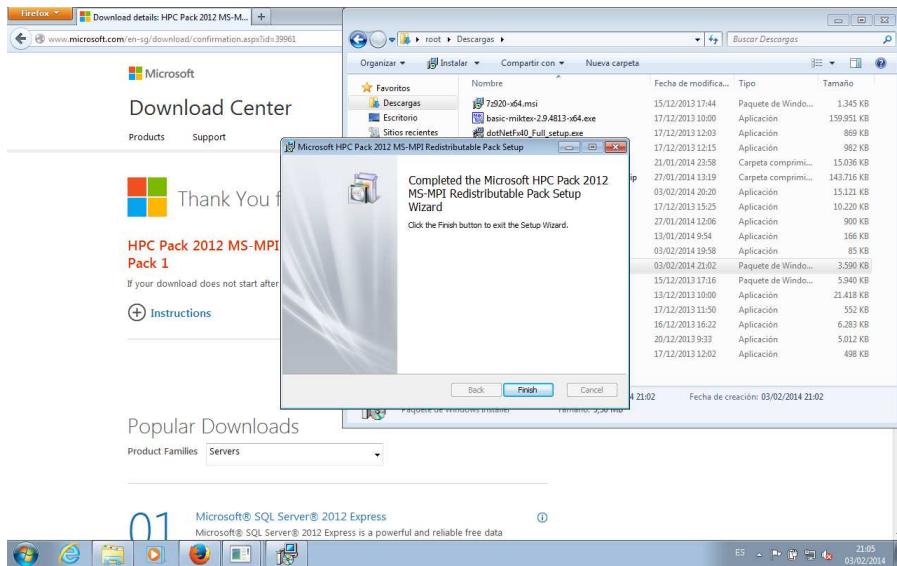
- Click on the **Install** button



10. Click on the Yes button



11. Click on the Finish button



5 Installing MinGW 64 bits compiler and some useful libraries and tools

Here we install the following MSYS useful tools:

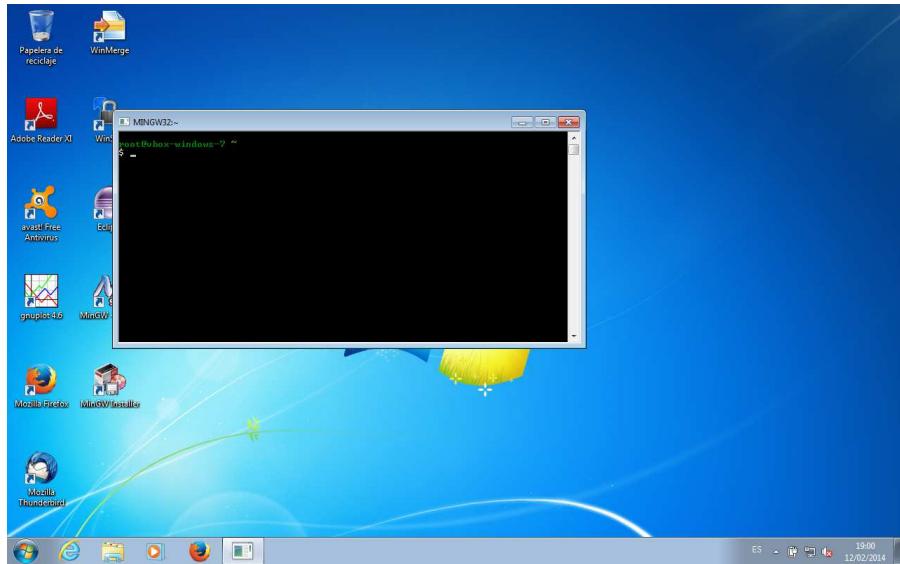
- bash 3.1.17
- bison 2.4.2
- flex 2.5.35
- gawk 3.1.7
- grep 2.5.4
- groff 1.20.1
- gzip 1.3.12
- m4 1.4.16
- make 3.81
- man 1.6f
- openssh 5.4p1
- perl 5.8.8
- patch 2.6.1
- sed 4.2.1
- tar 1.23
- texinfo 4.13a
- unzip 6.0
- vim 7.3
- wget 1.12
- xz 5.0.3
- zip 3.0

with the MinGW 64 bits compilers and the following useful libraries:

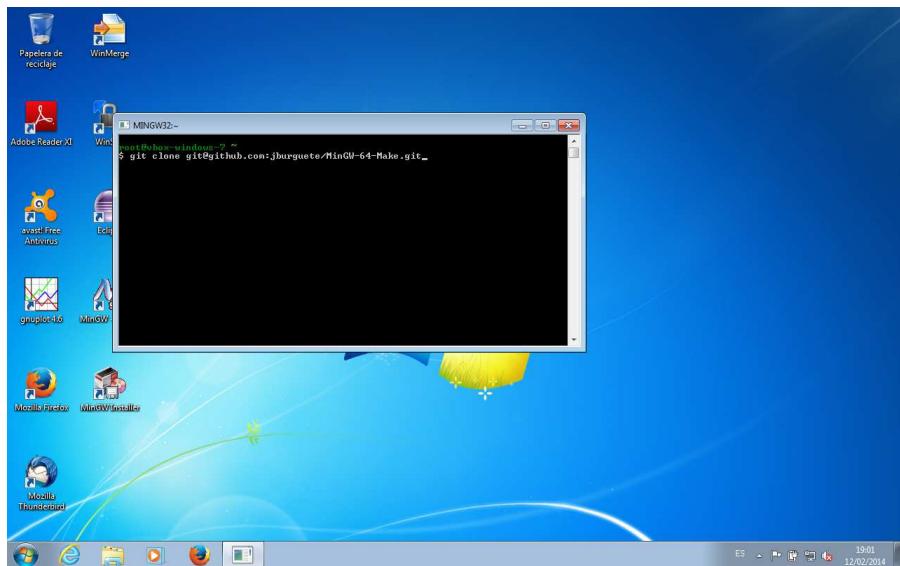
- atk 2.10.0
- autoconf 2.69
- automake 1.4.1
- cairo 1.12.16
- expat 2.1.0

- fontconfig 2.11.0
- freeglut 2.8.1
- freetype 2.5.2
- gcc 4.8.2 (C, C++, Objective C, and FORTRAN compilers)
- gdk_pixbuf 2.30.2
- gettext 0.18.3.2
- glib 2.38.2
- gsl 1.16
- gtk+ 2.24.22 and 3.10.6
- libffi 3.0.13
- libiconv 1.14
- libpng 1.6.8
- libtool 2.4.2
- libxml 2.9.1
- pango 1.36.2
- pixman 0.32.4
- pkg-config 0.28
- python 2.7.6
- readline 6.2
- sqlite 3.8.3
- termcap 1.3.1
- zlib 1.2.8

1. Open the MSYS terminal clicking on the created direct access

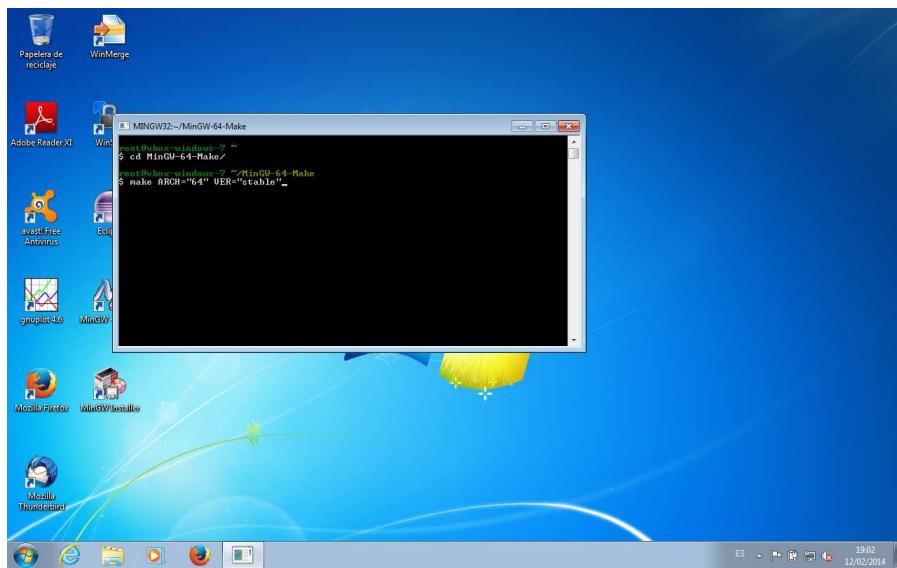


2. Download the MinGW-64-Make set of makefiles and patches by typing
`git clone git@github.com:jburguete/MinGW-64-Make.git`

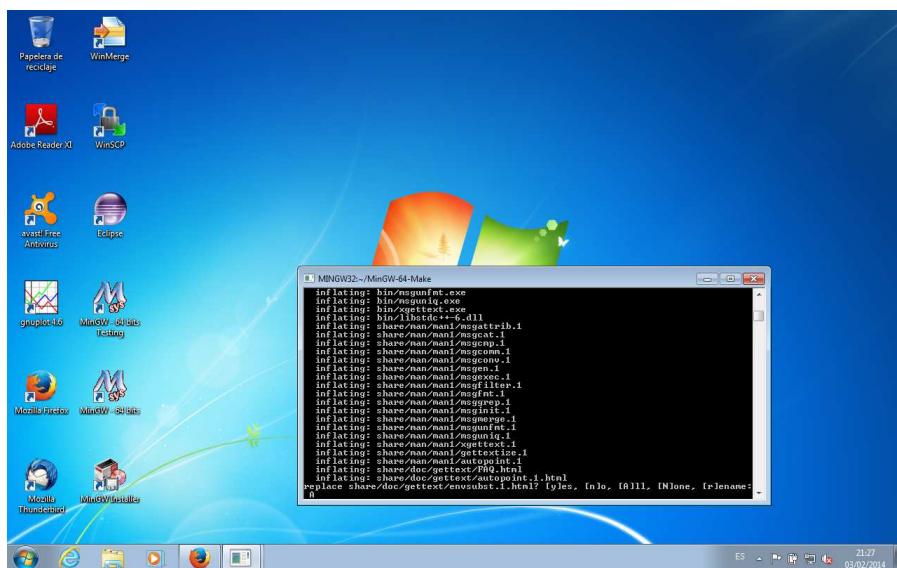


3. Enter on the new directory and execute the `make` command passing the architecture (`ARCH="32"` or `ARCH="64"` for 32 bits or 64 bits respectively) and the version (`VER="stable"`, `VER="testing"` or `VER="experimental"` for stable, testing or experimental versions respectively) by typing for instance:

```
cd MinGW-64-Make  
make ARCH="64" VER="stable"
```



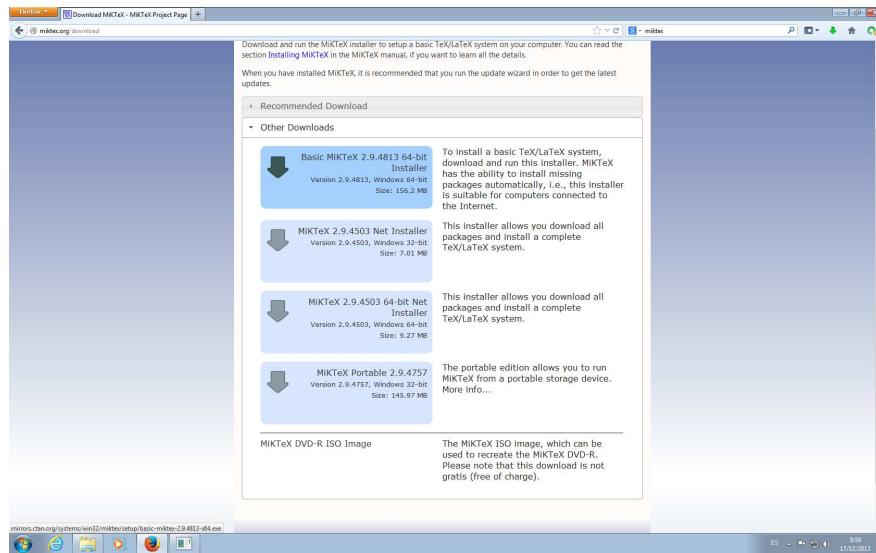
4. Press A key on the question



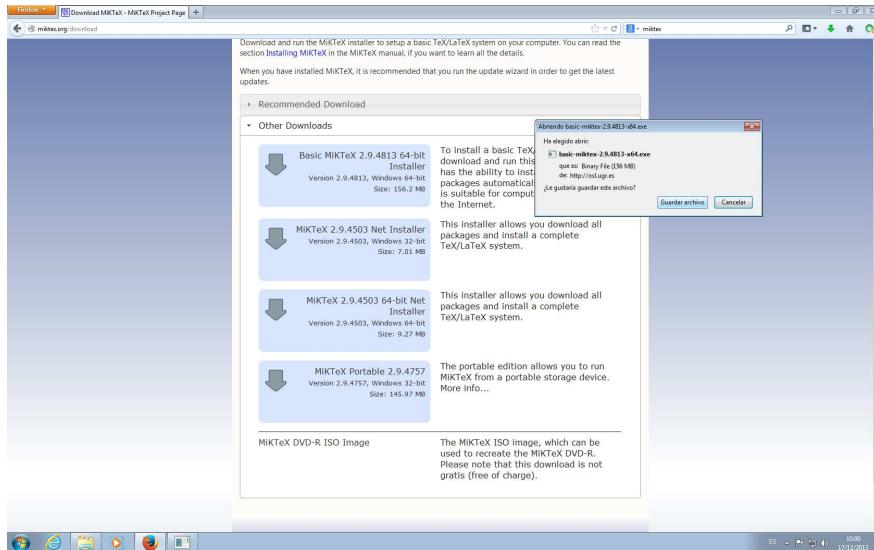
6 Installing MiKTeX LaTeX (optional)

MiKTeX is a distribution of the LaTeX text processor for Windows. We install here the basic 64 bits distribution.

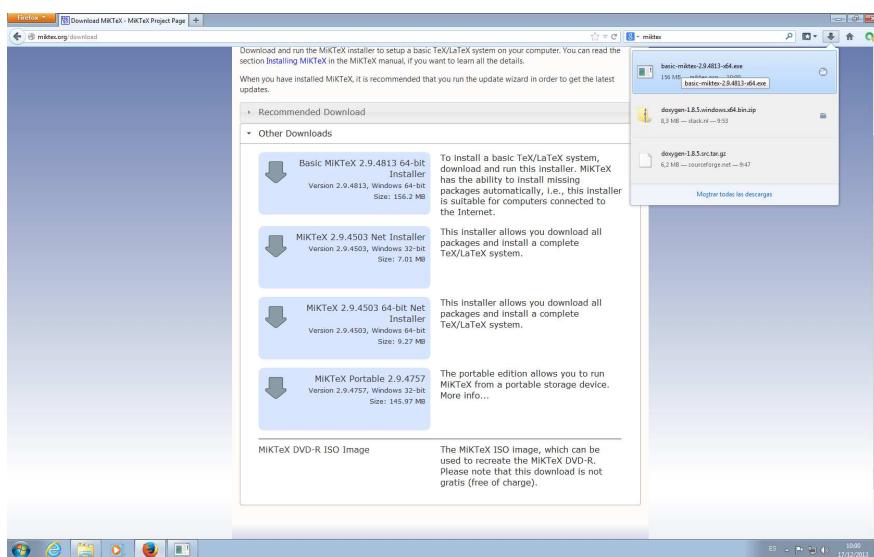
1. Download the distribution from <http://miktex.org/download> clicking on the **Other Downloads** panel and the **Basic MiKTeX 2.9.4813 64-bit Installer** (the number is the version at the date to make this tutorial)



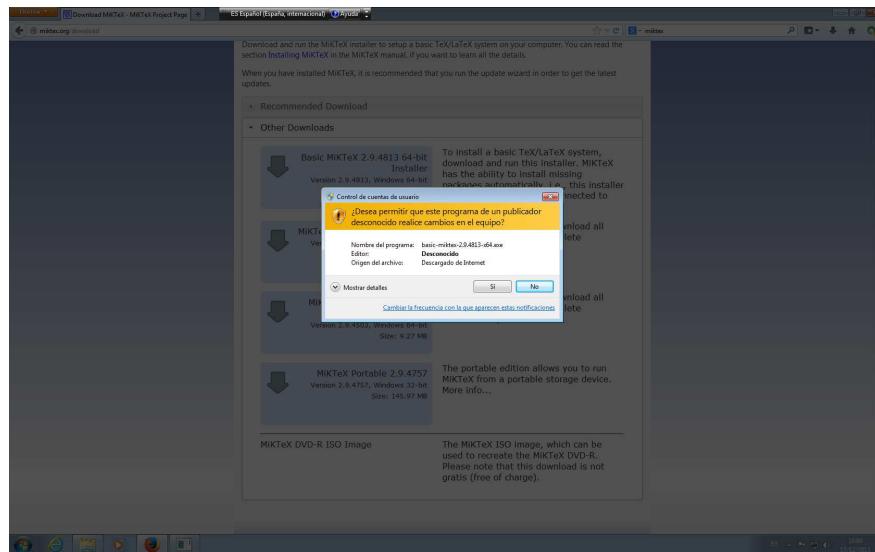
2. Click on the **Save file** button



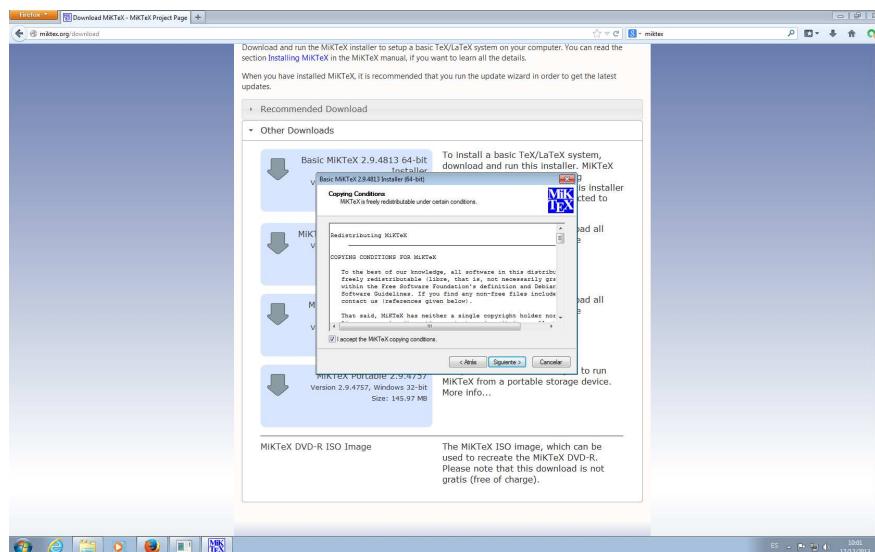
3. Click on the downloaded installer (**basic-miktex-2.9.4813-x64.exe** is the last version at the date to make this tutorial)



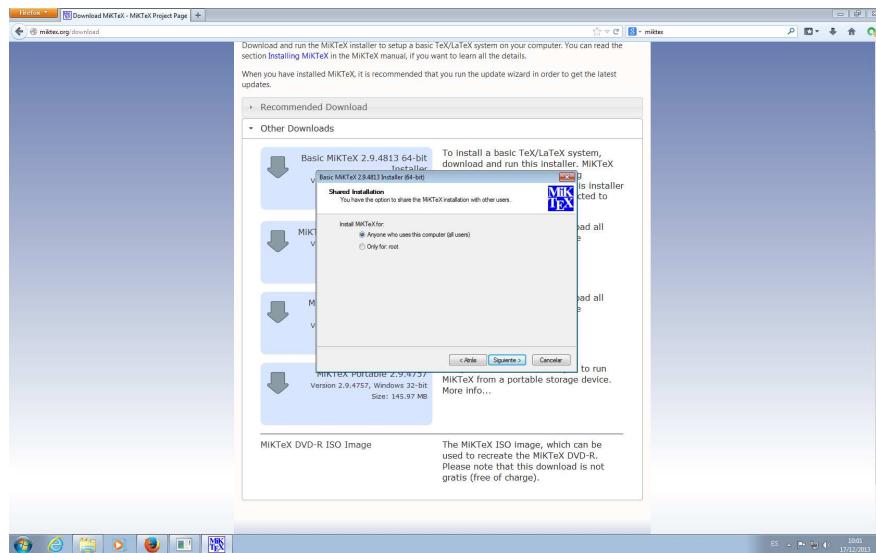
4. Click on the Yes button



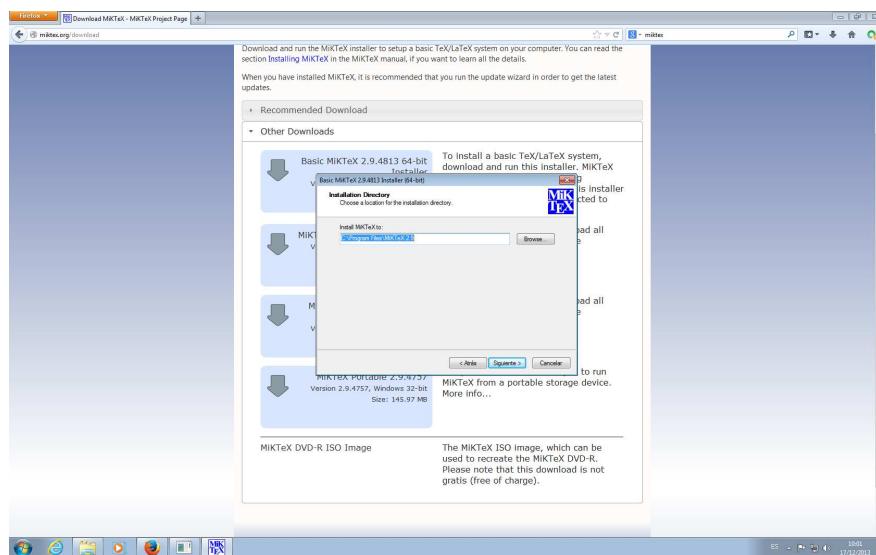
5. Accept the license and click on the Next button



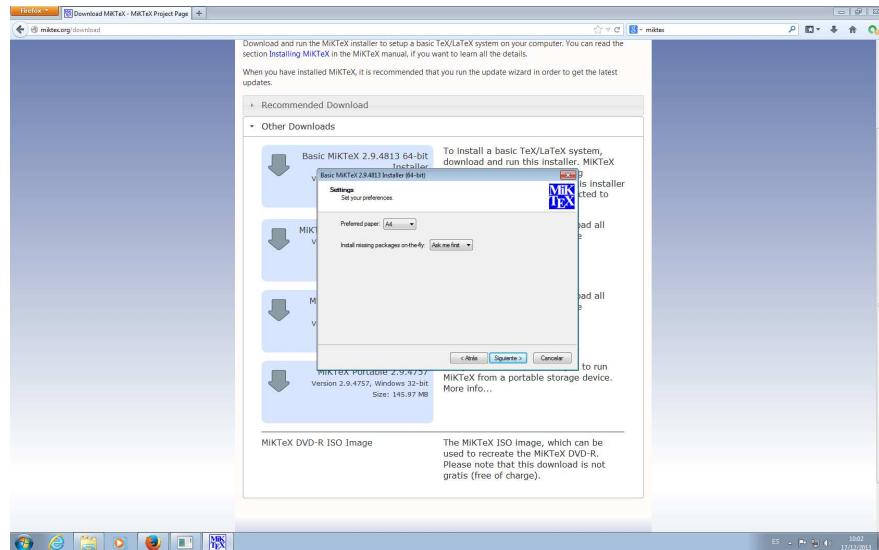
6. Select the **Anyone who uses the computer (all users)** option and click on the **Next** button



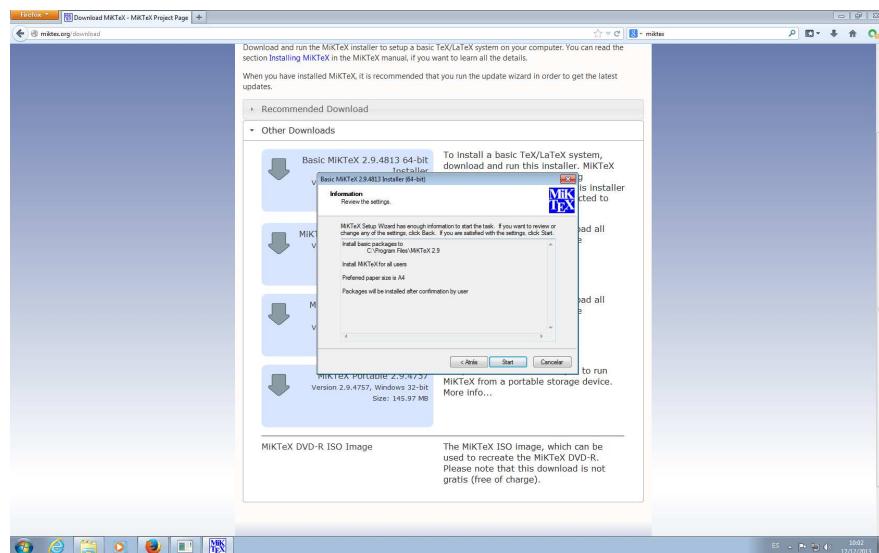
7. Select the installation directory and click on the **Next** button



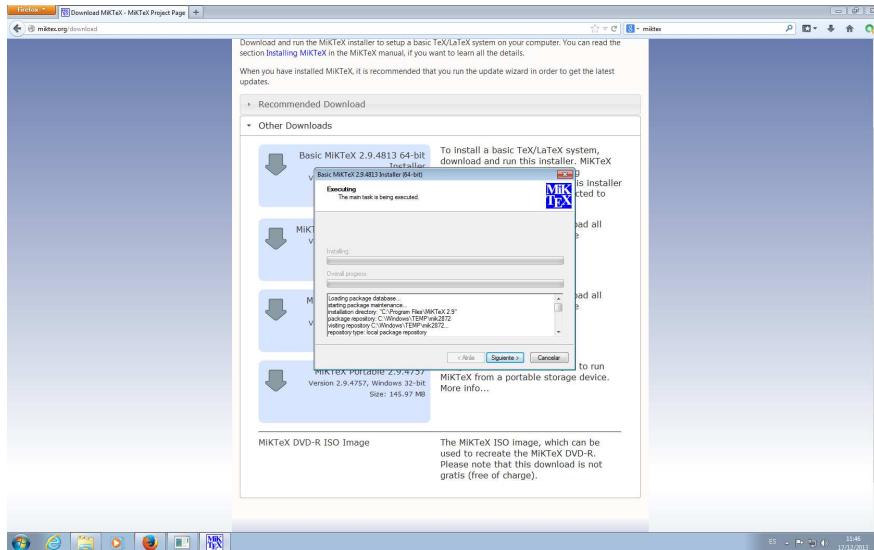
8. Select the preferred options and click on the **Next** button



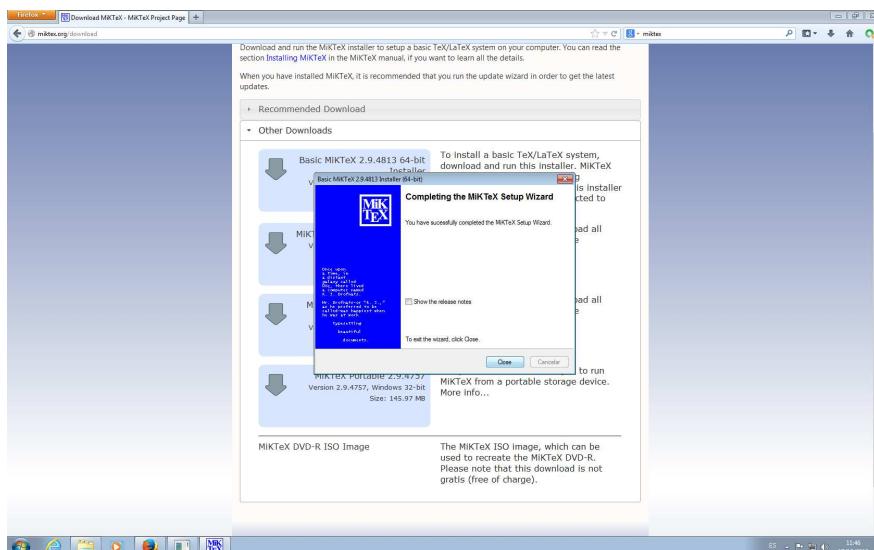
9. Click on the **Start** button



10. Click on the **Next** button



11. Click on the **Close** button



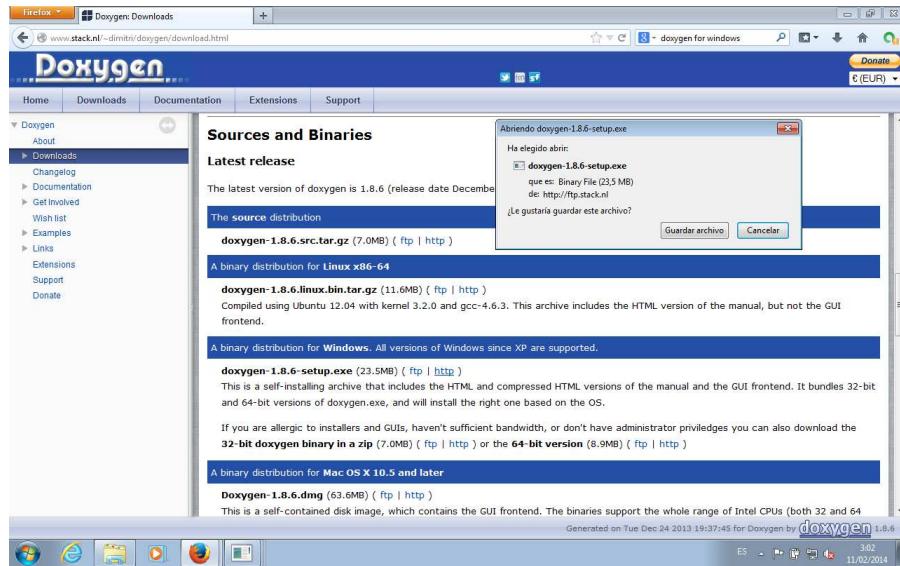
7 Installing Doxygen (optional)

Doxygen is a

1. Download the program from <http://www.stack.nl/~dimitri/doxygen/download.html> clicking on the **doxygen-1.8.6-setup.exe http** option (the number is the version at the date to make this tutorial)



2. Click on the Save file button



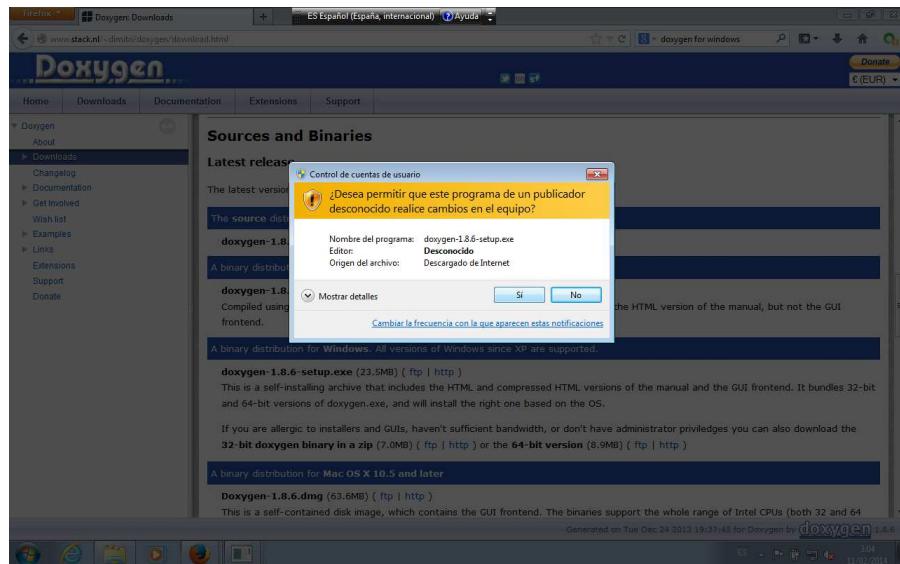
3. Click on the downloaded installer (doxygen-1.8.6-setup.exe is the last version at the date to make this tutorial)



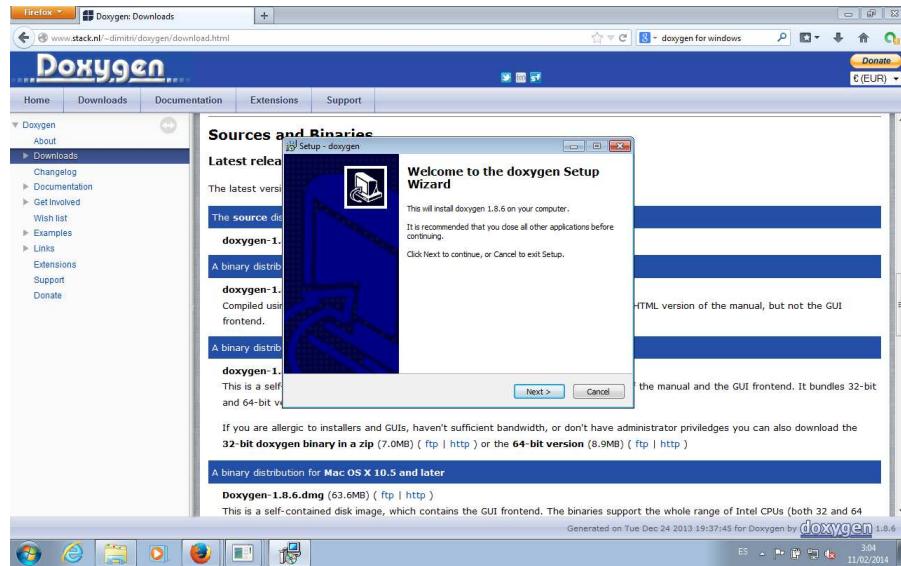
4. Click on the **Execute** button



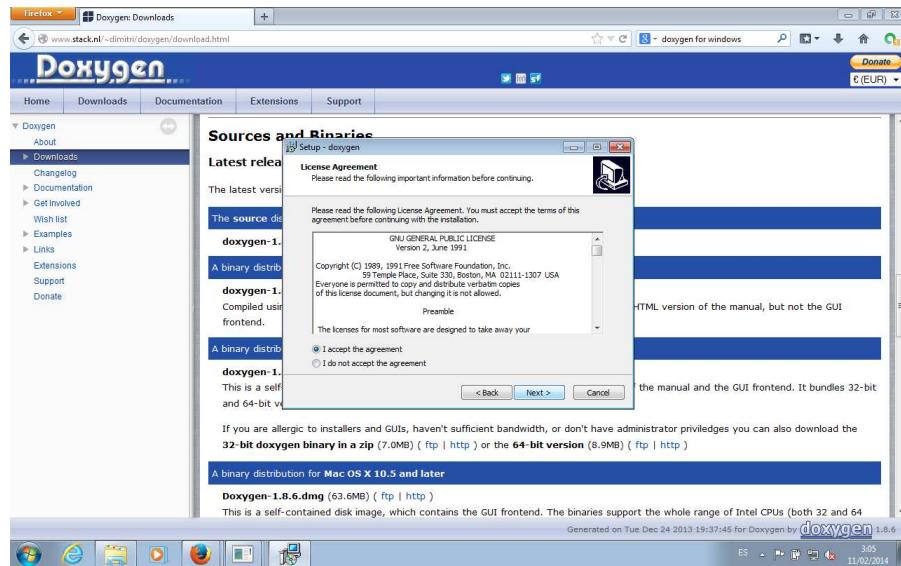
5. Click on the **Yes** button



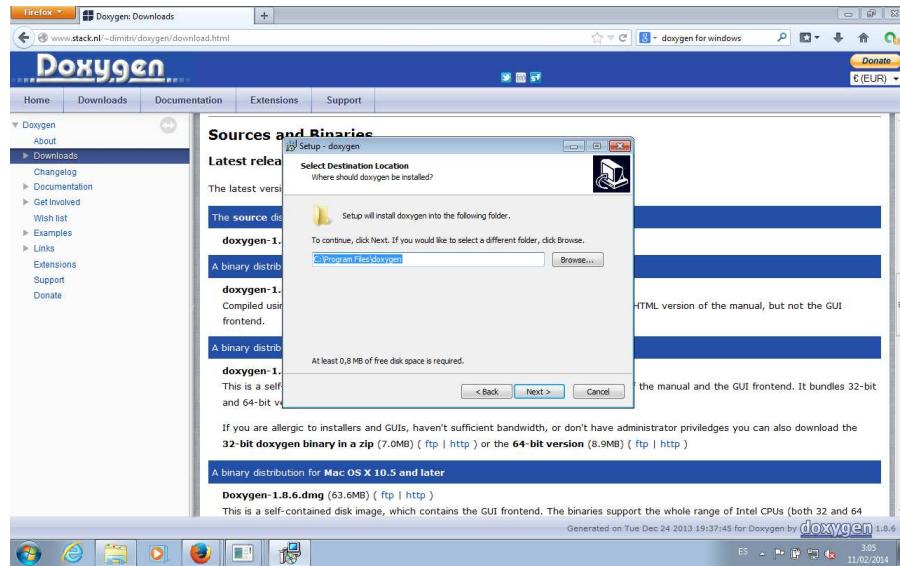
6. Click on the **Next** button



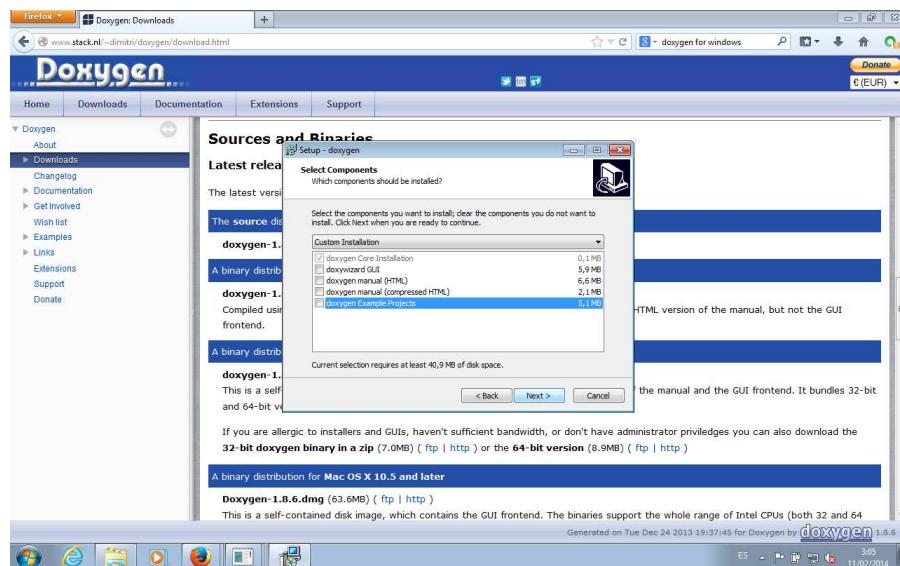
7. Accept the license and click on the **Next** button



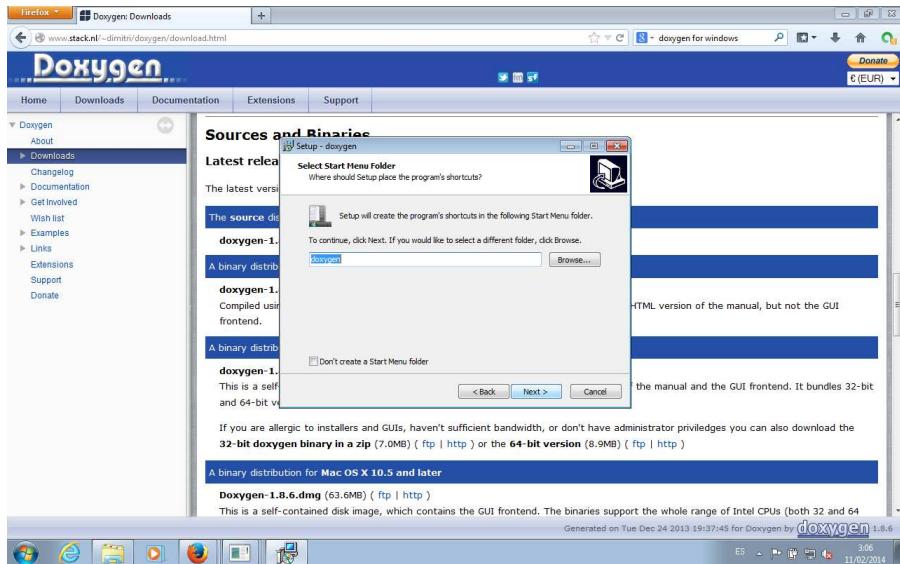
8. Select the installation directory and click on the **Next** button



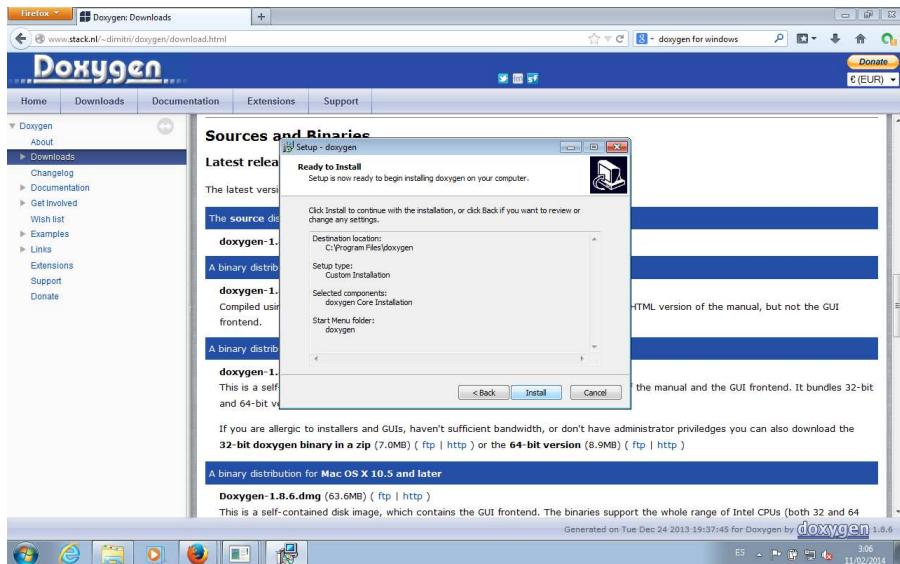
9. Select the components and click on the **Next** button



10. Select the start menu folder and click on the **Next** button



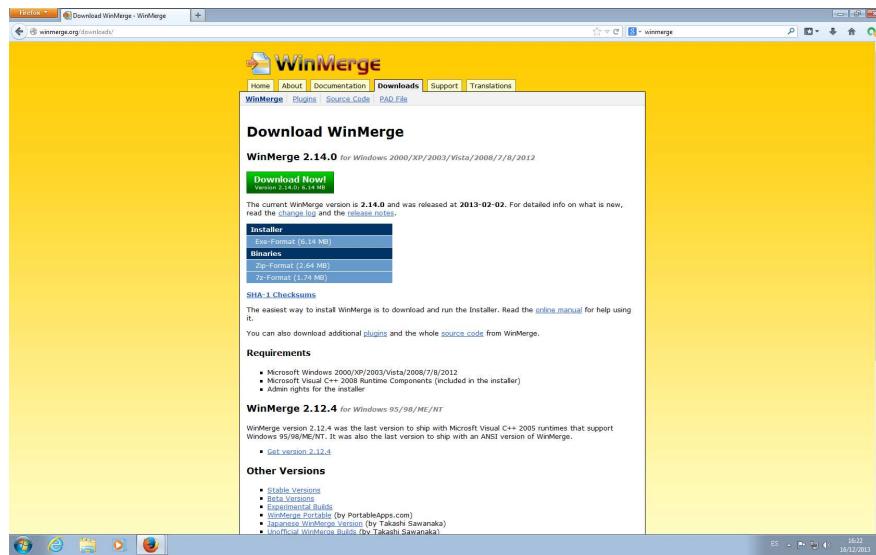
11. Click on the **Install** button



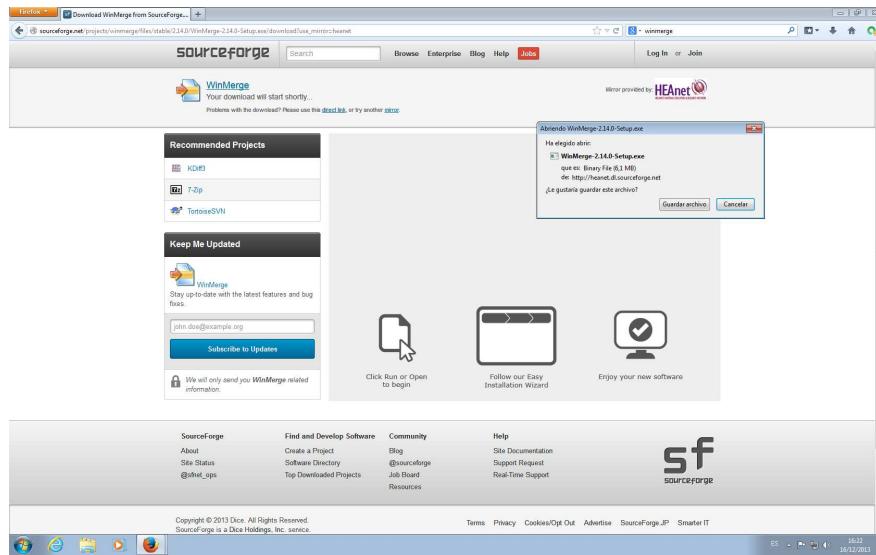
8 Installing WinMerge (optional)

WinMerge is a tool to show and merge differences between files.

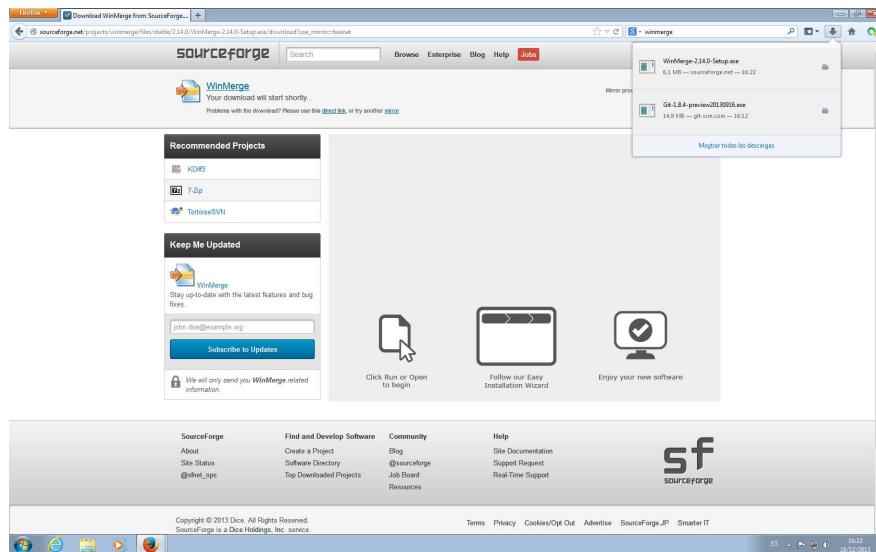
1. Download the program from <http://winmerge.org/downloads> clicking on the **Download Now!** button



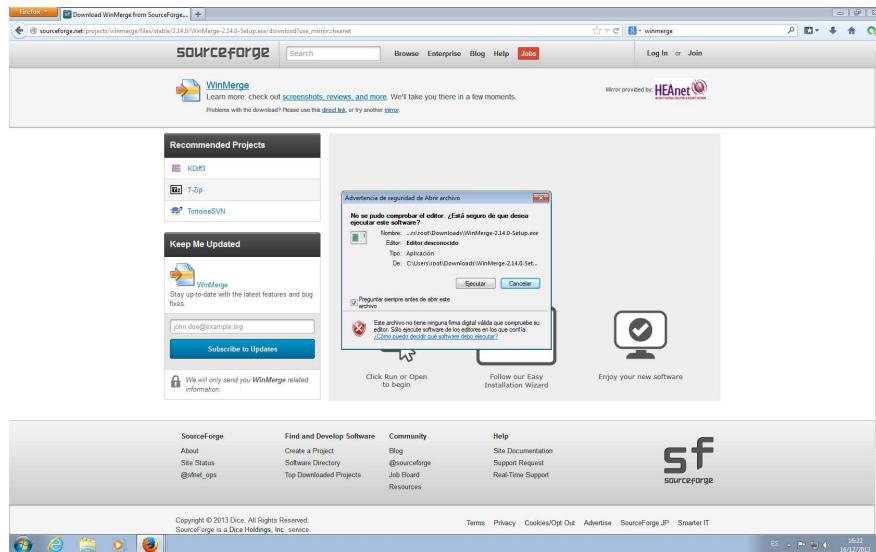
2. Click on the **Save file** button



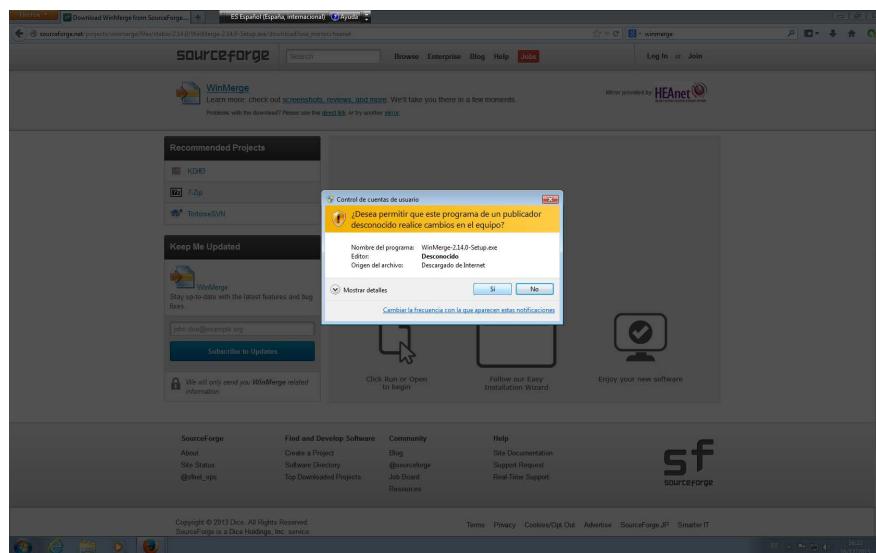
3. Click on the downloaded installer (**WinMerge-2.14.0-Setup.exe** is the last version at the date to make this tutorial)



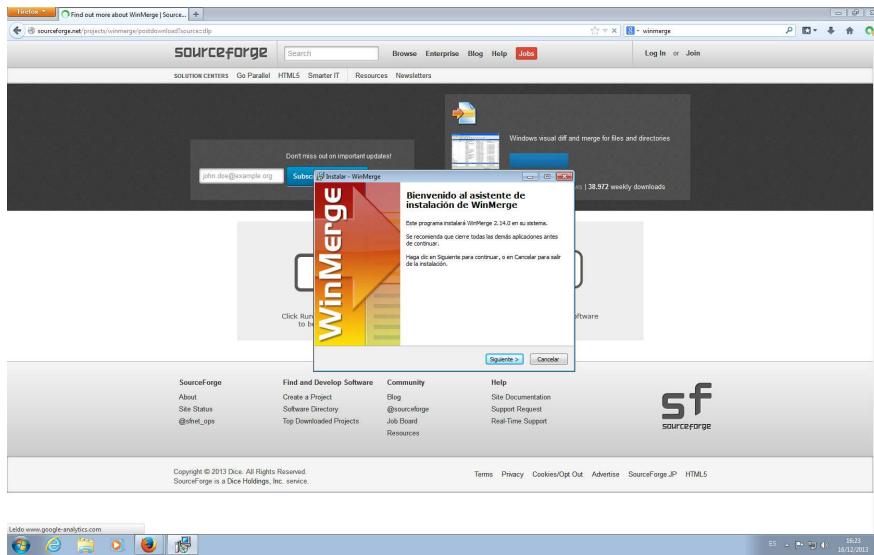
4. Click on the **Execute** button



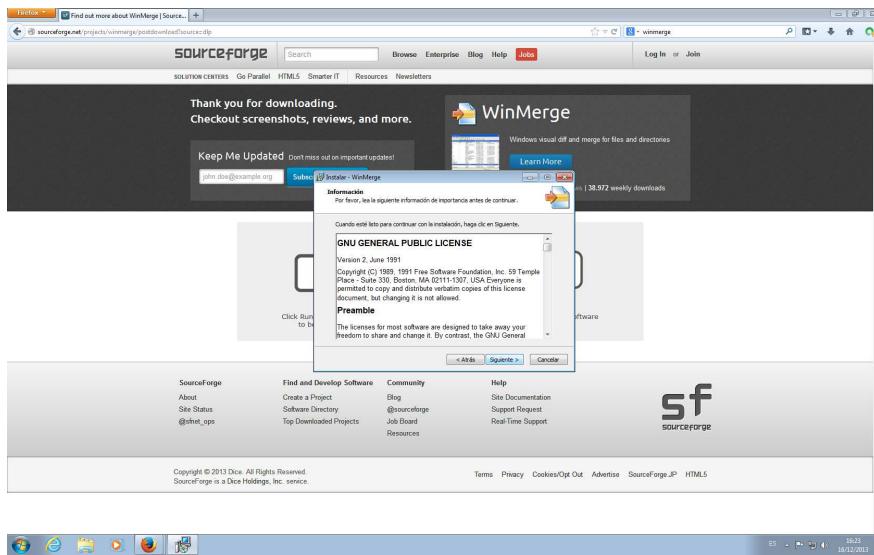
5. Click on the **Yes** button



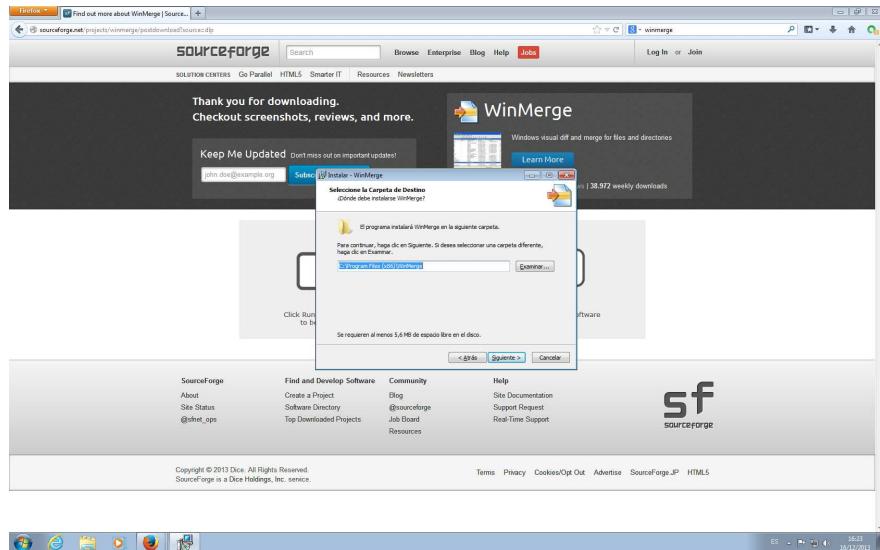
6. Click on the **Next** button



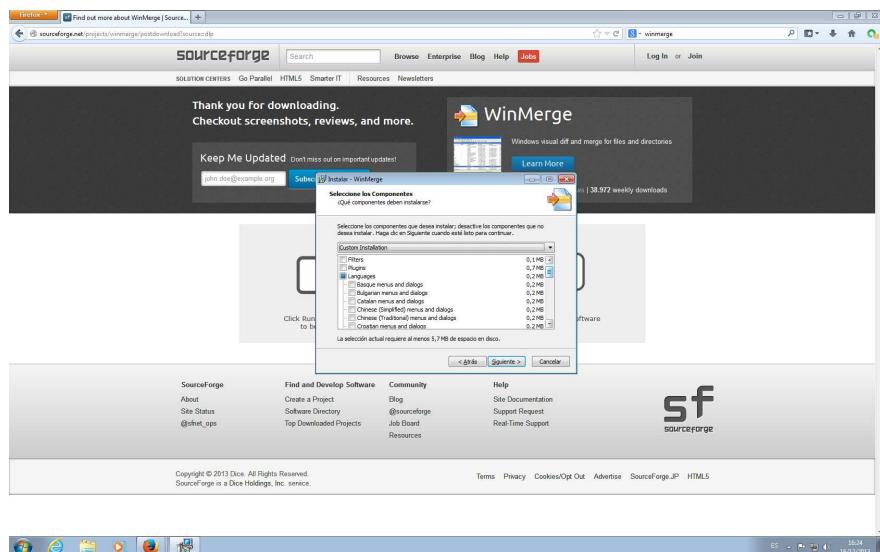
7. Click on the **Next** button



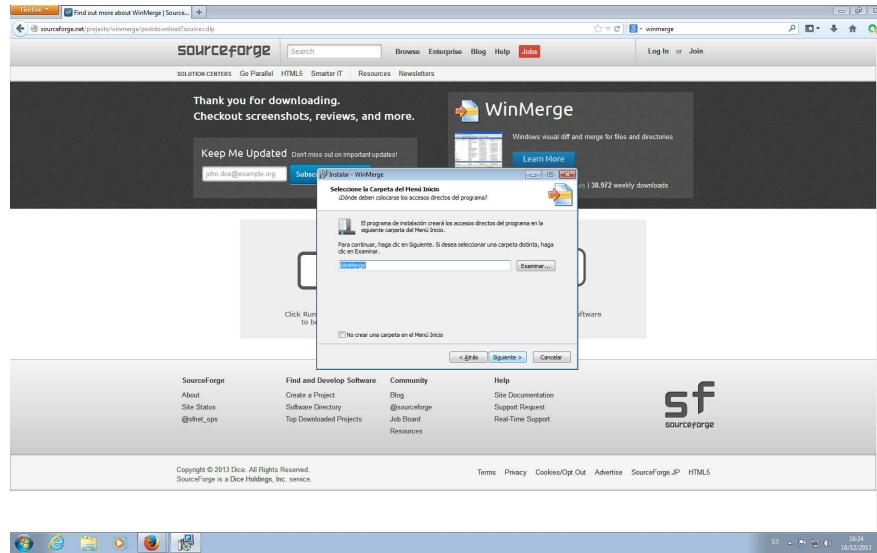
8. Select the installation directory and click on the **Next** button



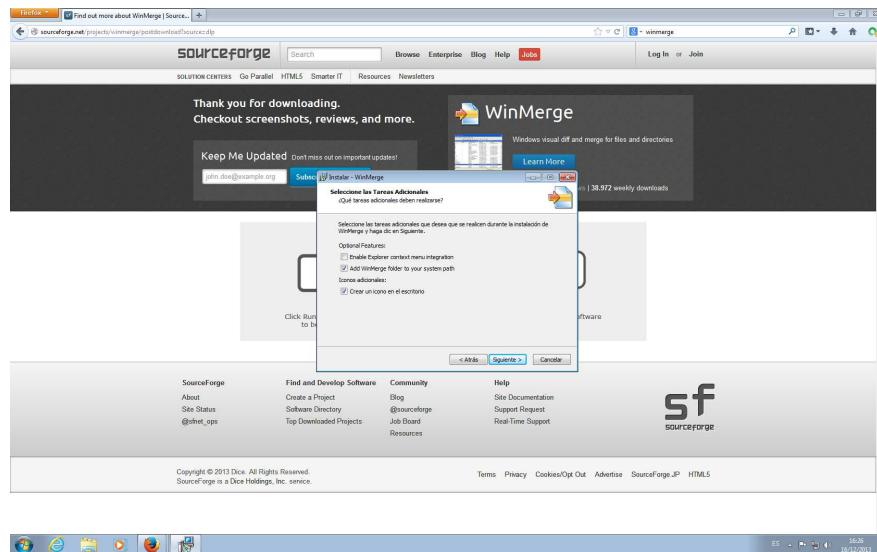
9. Select the components and click on the **Next** button



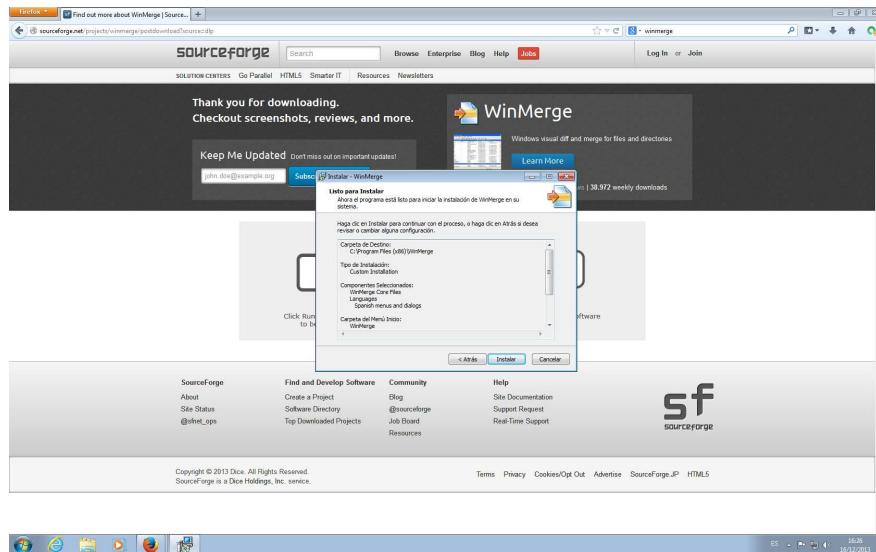
10. Select the start menu folder and click on the **Next** button



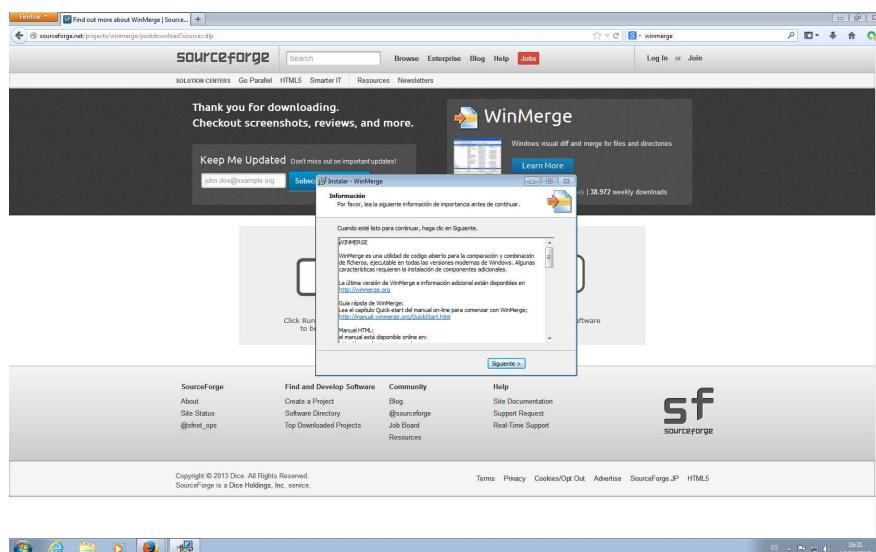
11. Select the **Add WinMerge folder to your system path** option and click on the **Next** button



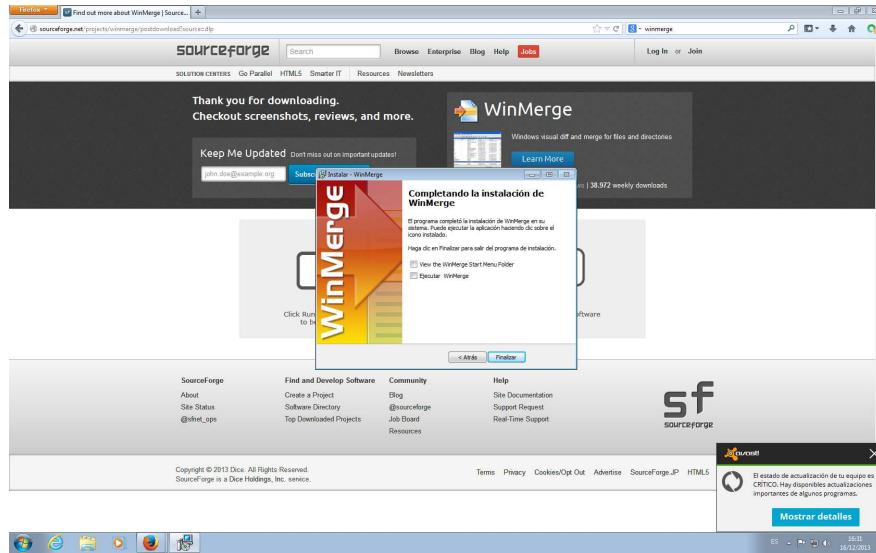
12. Click on the **Install** button



13. Click on the **Next** button



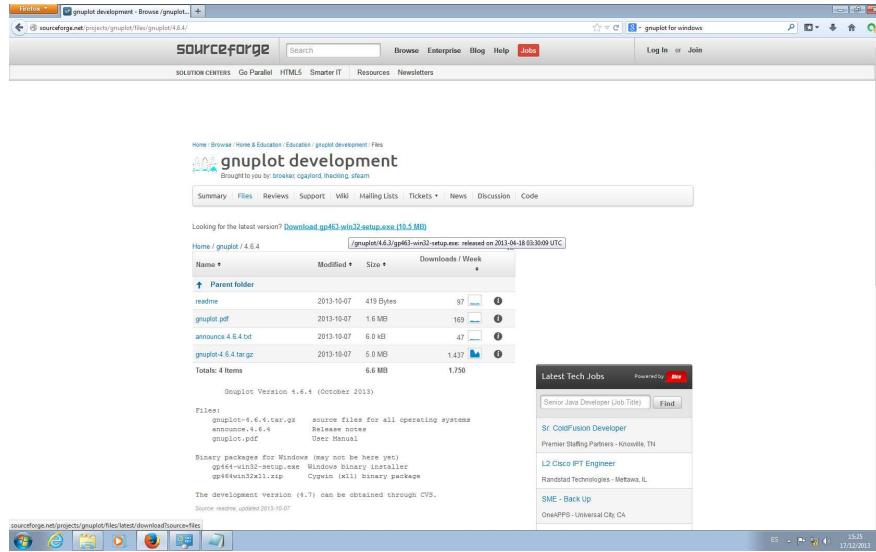
14. Click on the **Finish** button



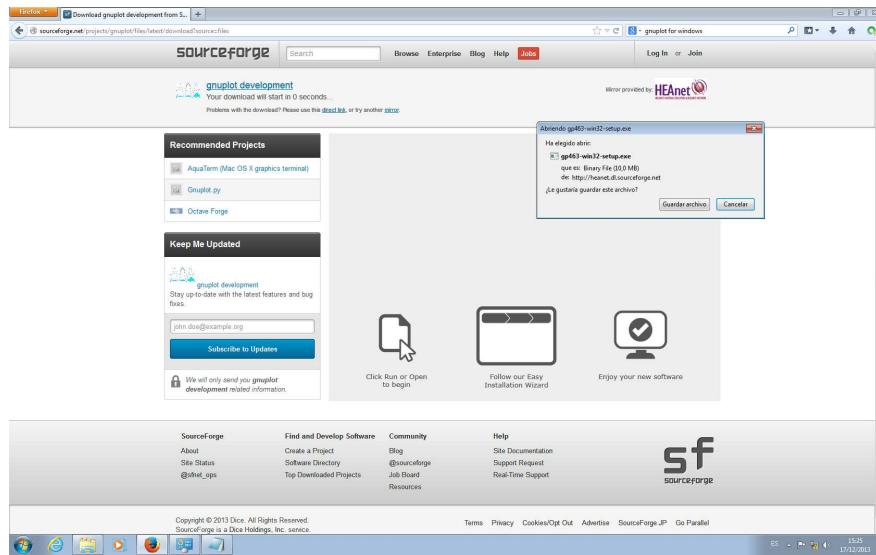
9 Installing GNUPlot (optional)

GNUPlot is a tool to draw mathematical graphicals.

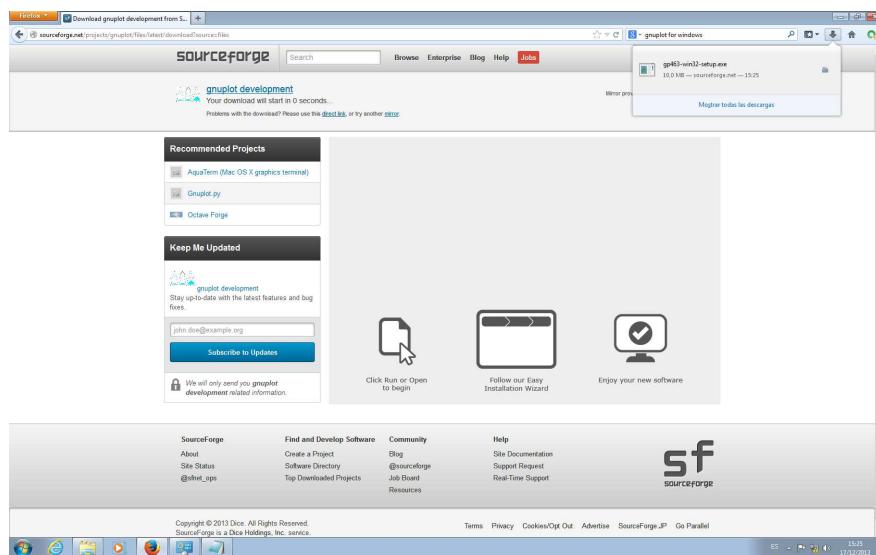
1. Download it from <http://sourceforge.net/projects/gnuplot/files/gnuplot/4.6.4/> clicking on the **Download gp463-win32-setup.exe** option (at the moment to make this tutorial 4.6.3 was the last program version)



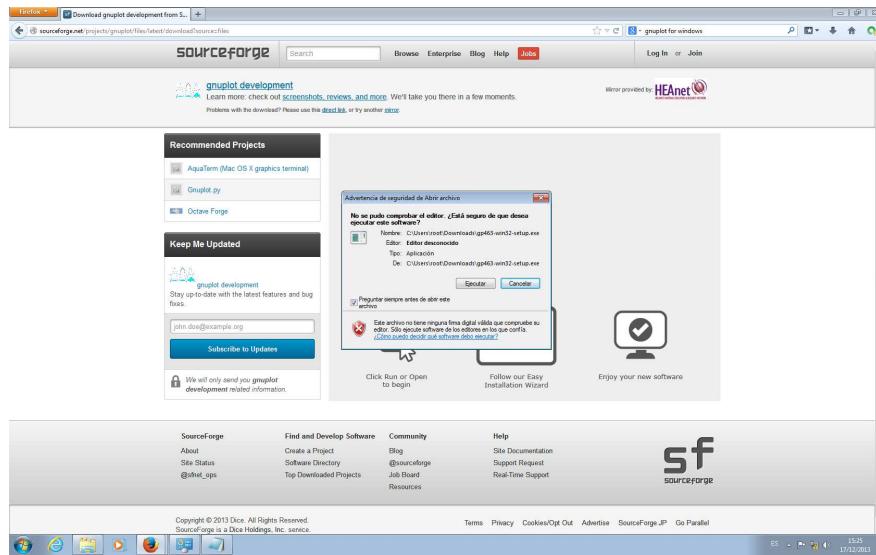
2. Click on the **Save file** button



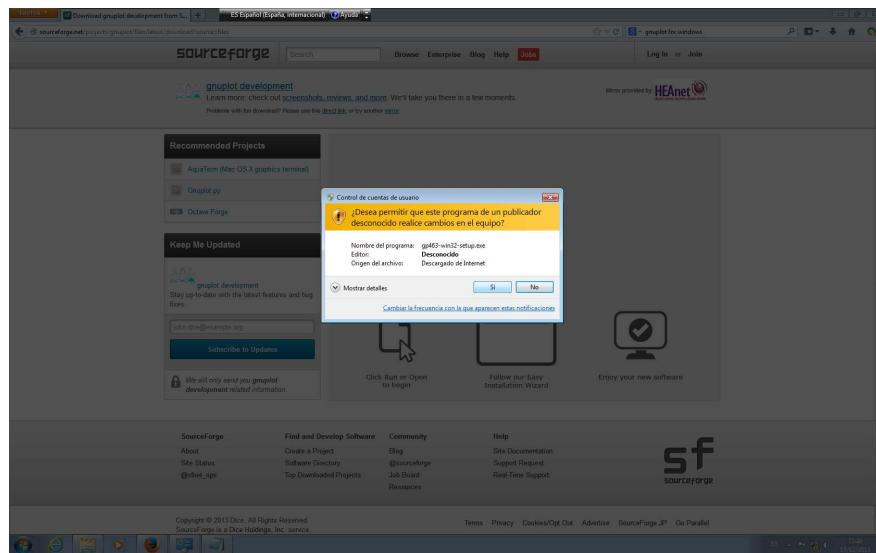
3. Click on the downloaded installer (**WinMerge-2.14.0-Setup.exe** is the last version at the date to make this tutorial)



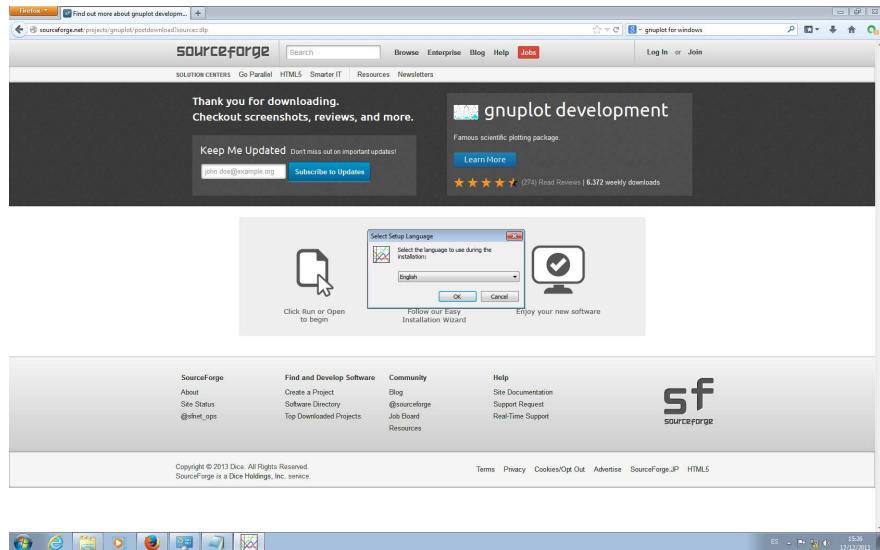
4. Click on the **Execute** button



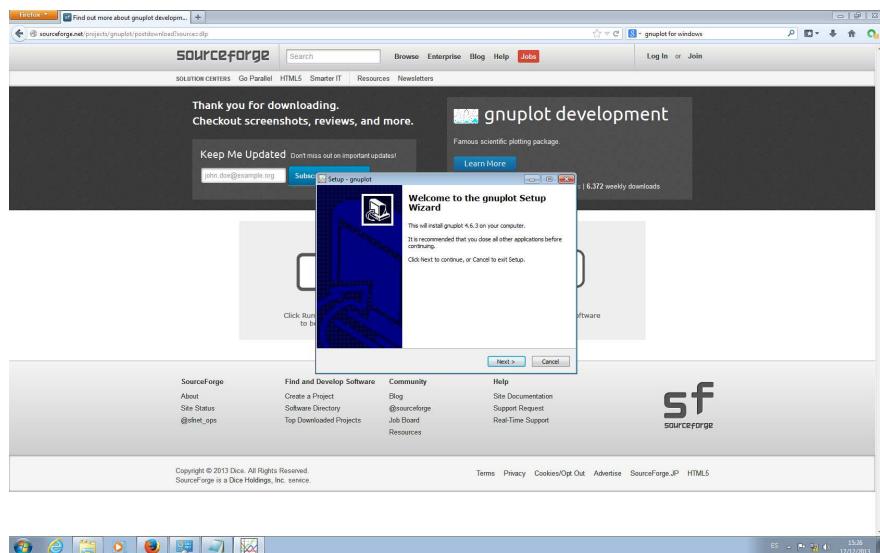
5. Click on the **Yes** button



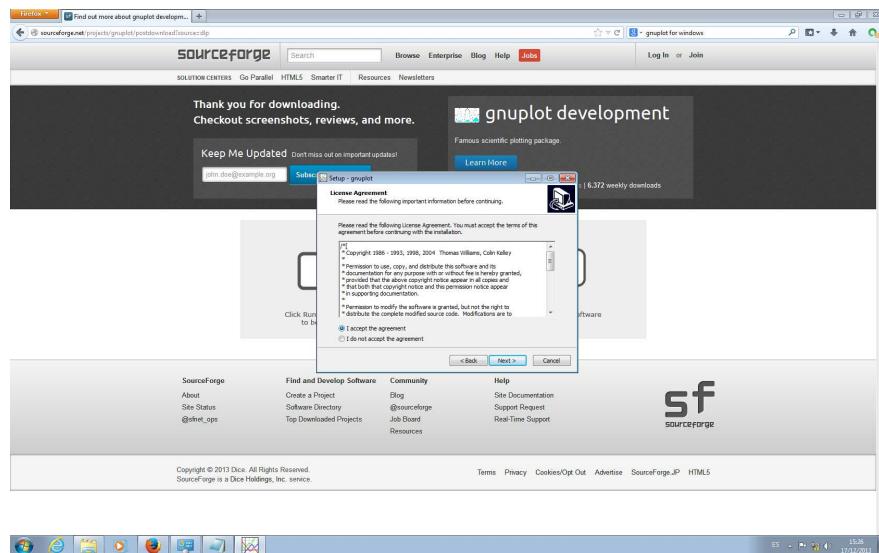
6. Select the language and click on the Yes button



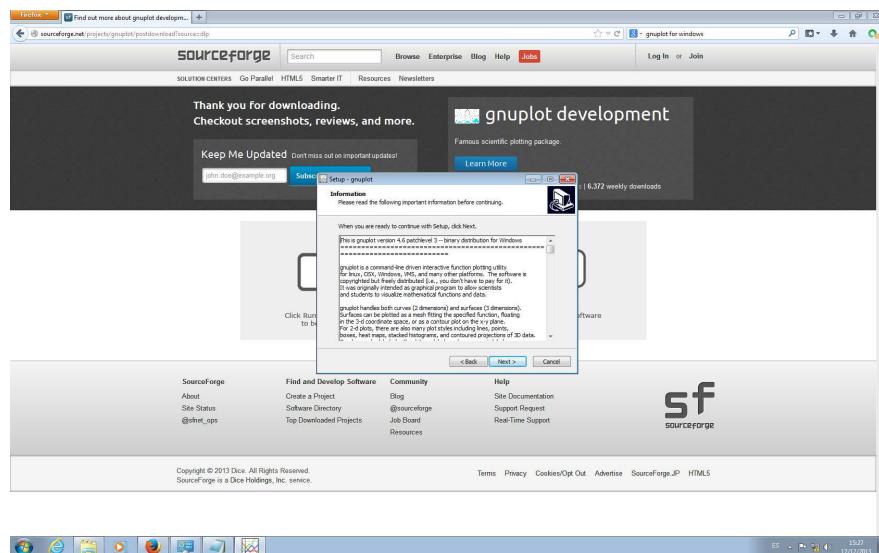
7. Click on the Next button



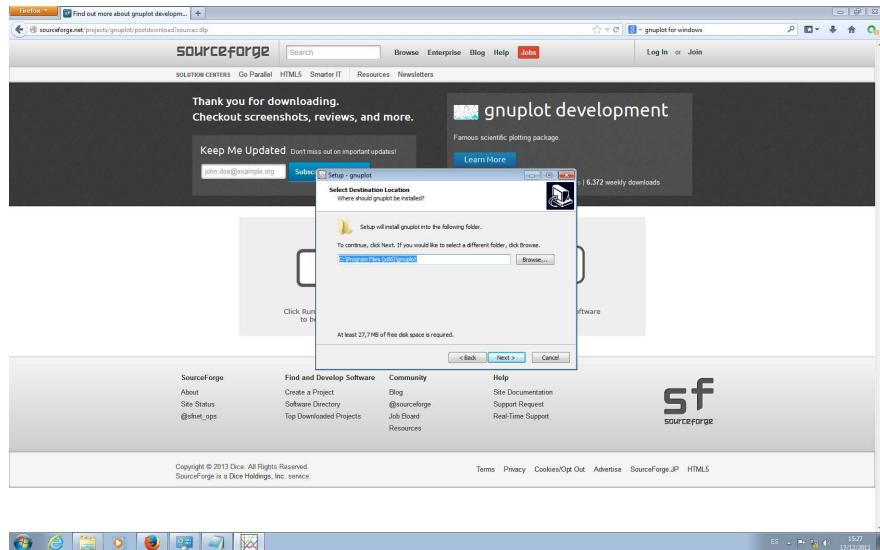
8. Accept the license and click on the **Next** button



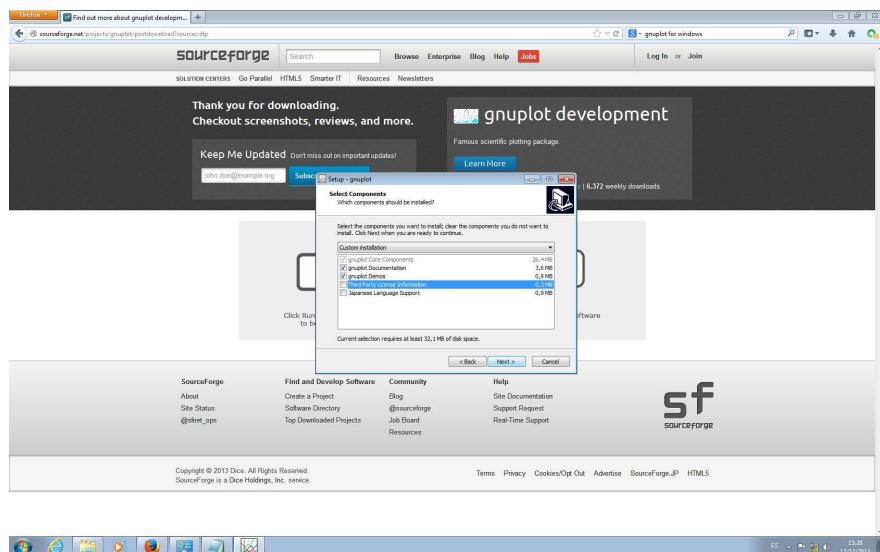
9. Click on the **Next** button



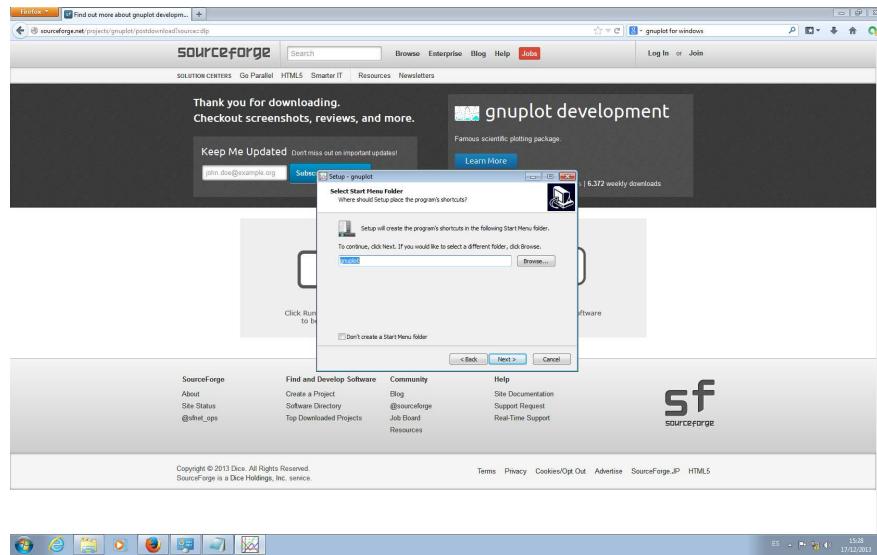
10. Select the installation directory and click on the **Next** button



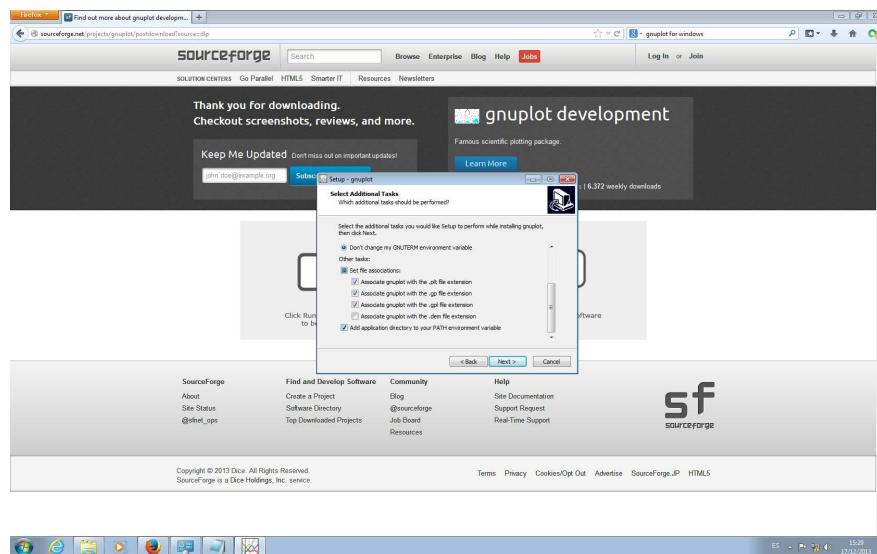
11. Select the components and click on the **Next** button



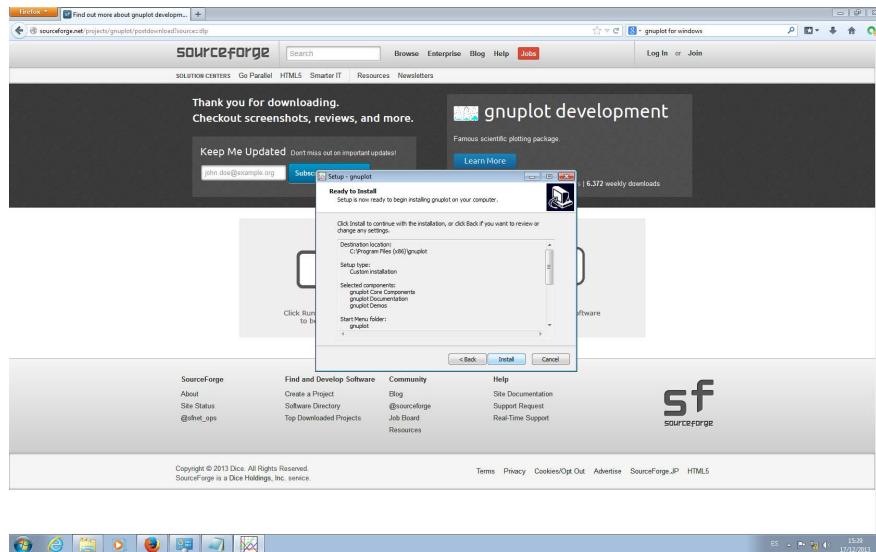
12. Select the start menu folder and click on the **Next** button



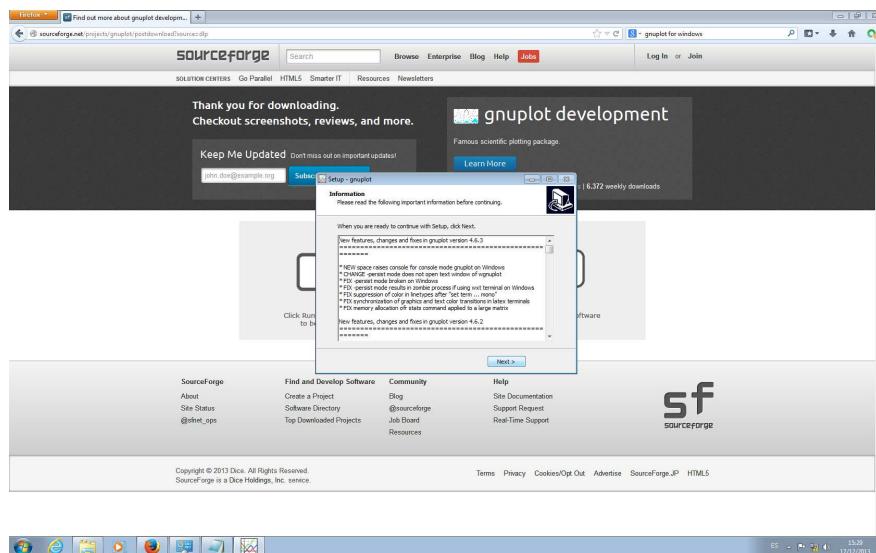
13. Select the **Add application directroy to your PATH environment variable** and click on the **Next** button



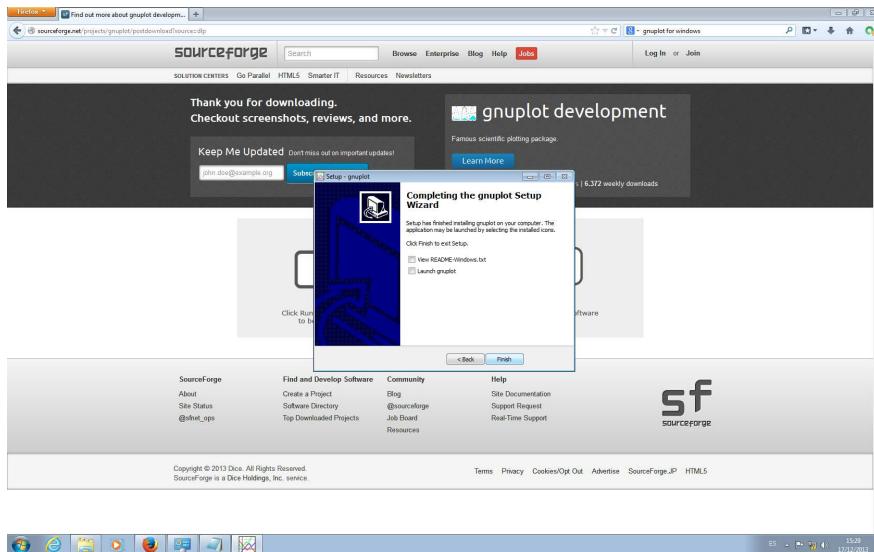
14. Click on the **Install** button



15. Click on the **Next** button



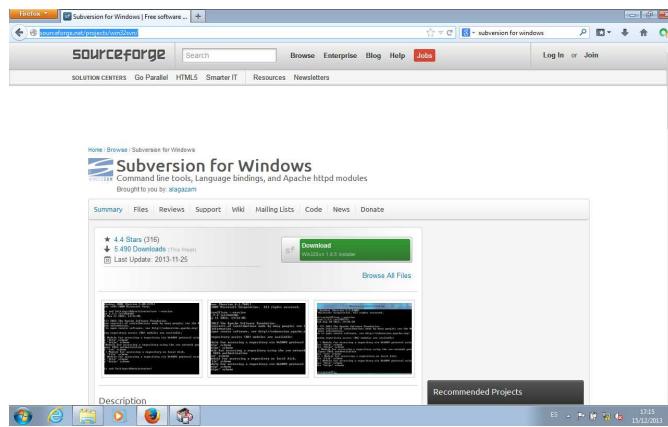
16. Click on the **Finish** button



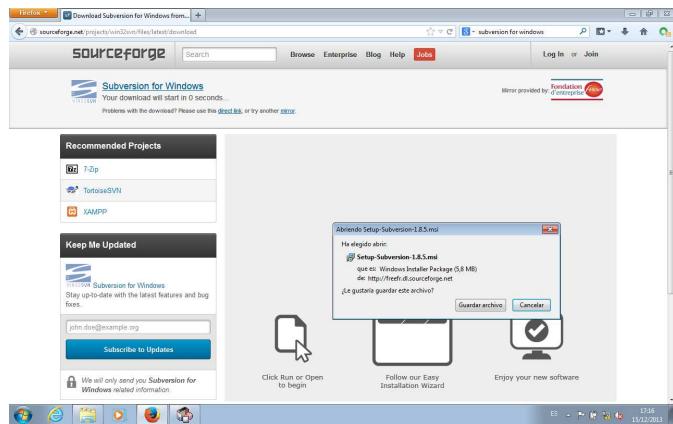
10 Installing Subversion (optional)

Subversion is a distributed revision control and source code management, similar to Git. In this section we install and configure it to be accessible in the MSYS terminal.

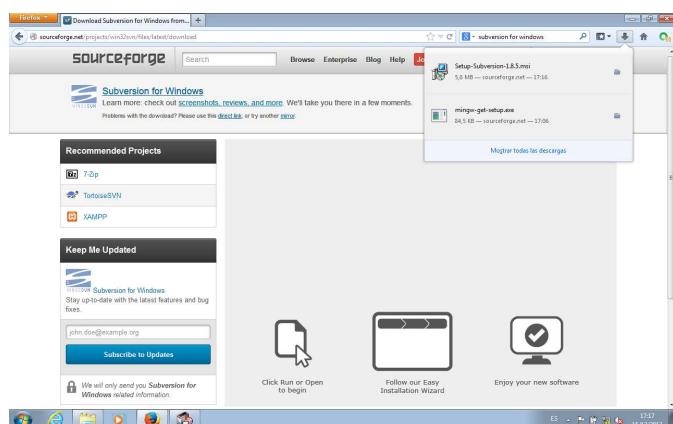
1. Download it from <http://sourceforge.net/projects/win32svn> clicking on the **Download** button



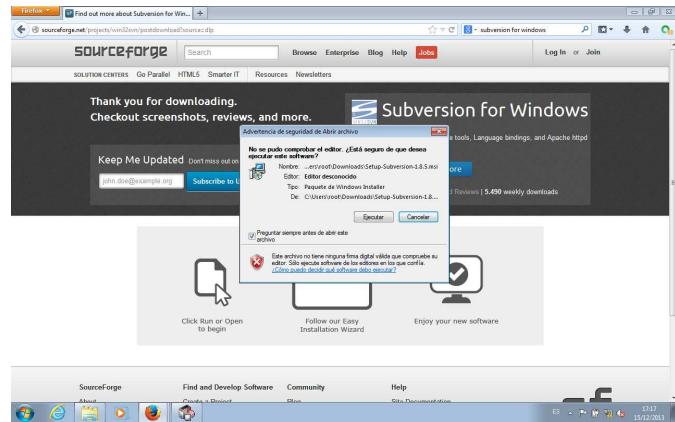
2. Click on the **Save file** button



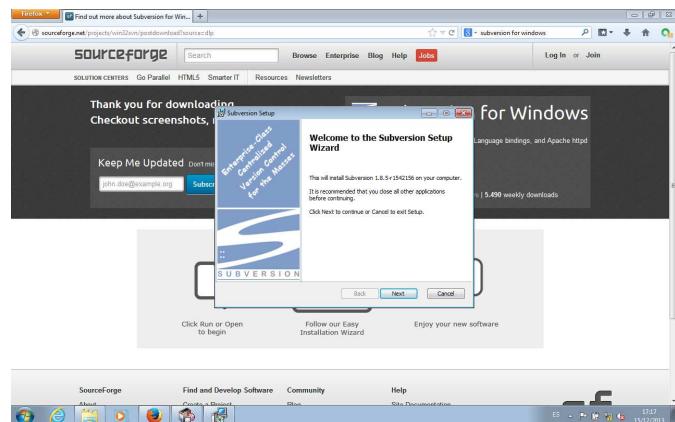
3. Click on the downloaded installer (**Setup-Subversion-1.8.5.msi** is the last version at the date to make this tutorial)



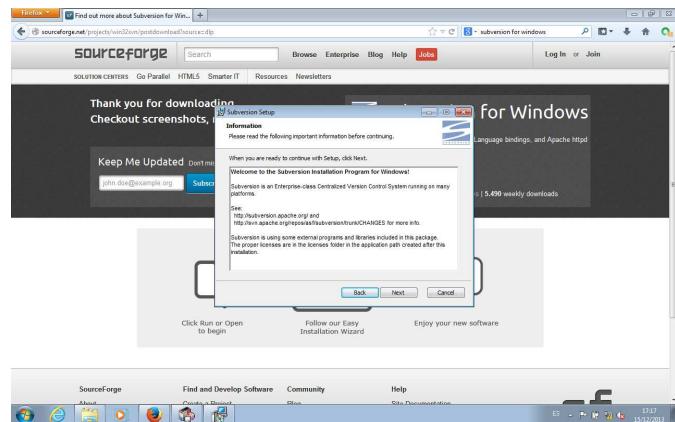
4. Click on the **Execute** button



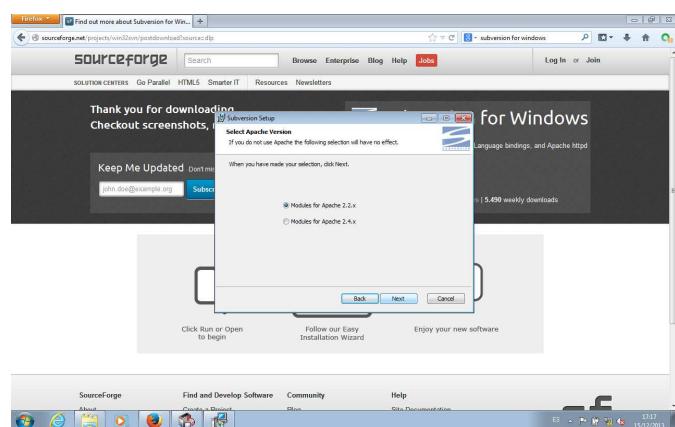
5. Click on the **Next** button



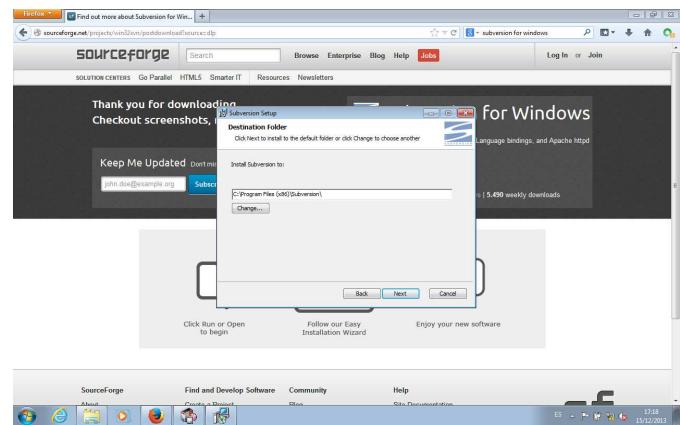
6. Click on the **Next** button



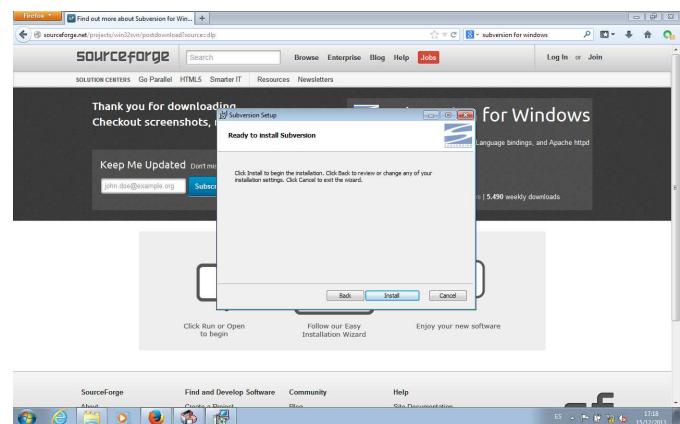
7. Select the more adequate option and click on the **Next** button



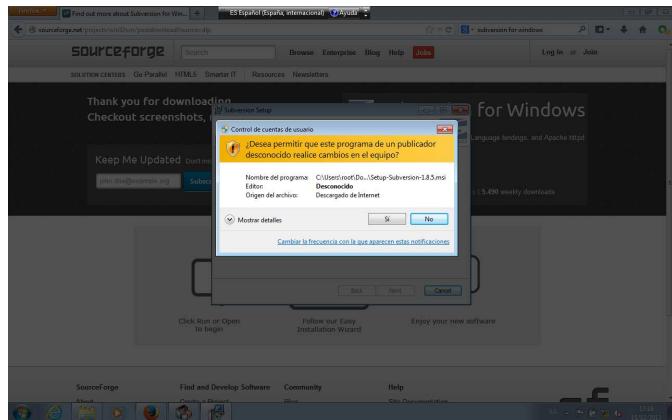
8. Select the installation directory and click on the **Next** button



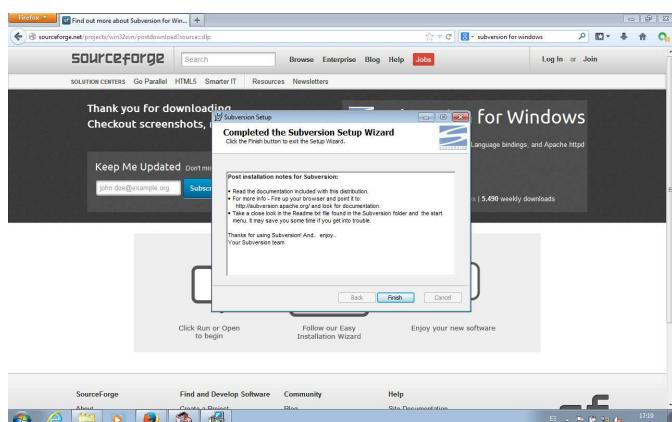
9. Click on the **Install** button



10. Click on the **Yes** button



11. Click on the **Finish** button



11 Installing Eclipse (optional)