

## Kinect Installation Guideline (Tested on Windows XP)

\*This guideline is based on the installation guideline on OpenKinect.org  
([http://openkinect.org/wiki/Getting\\_Started](http://openkinect.org/wiki/Getting_Started))

We use Visual Studio 2008 as the compiler throughout this guideline.

### Preliminary

You have to install the following before installing the libfreenect library.

1. libusb-win32
2. pthread-win32
3. Glut
4. stdint.h
5. CMake

libusb-win32:

1. Download and extract the latest libusb-win32-bin-x.x.x.x.zip in  
<http://sourceforge.net/projects/libusb-win32/files/libusb-win32-releases/>

pthread-win32:

1. Download and extract the latest pthreads-w32-x-x-x-release.exe with pre-built .lib and .dll file in  
<http://sourceware.org/pthreads-win32/>
2. Find the /lib folder in the extracted files. It should be in the folder called "Pre-built.2"
3. Copy all the .dll files into c:\windows\system32

Glut:

1. Download and extract the latest glut-x.x.x-bin.zip in <http://www.xmission.com/~nate/glut.html>
2. Find the glut32.dll in the extracted files
3. Copy this file to c:\windows\system32
4. Find the glut32.lib
5. Copy it to the Visual Studio VC lib directory (e.g. C:\Program Files\Microsoft Visual Studio 9.0\VC\lib)
6. Find the glut.h
7. Copy it to the Visual Studio VC include directory (e.g. C:\Program Files\Microsoft Visual Studio 9.0\VC\include\GL \*If the GL folder does not exist, you have to create one yourself.)

stdint.h:

1. Copy the file directly into Visual Studio VC include directory (e.g. C:\Program Files\Microsoft Visual Studio 9.0\VC\include

CMake:

1. Download the binary installer in: <http://www.cmake.org/cmake/resources/software.html>

## Installing Driver

Before compile the libfreenect library, we have to install the hardware driver for Windows. The driver is bundled with the OpenKinect project which also include the libfreenect library source code.

1. Go to GitHub and download the OpenKinect project <https://github.com/OpenKinect/libfreenect>
2. Choose the stable version and download
3. Extract the files
4. Plug your kinect to your PC and make sure the power supply is on.
5. Windows will report there is an unknown device without driver and ask you to find the driver.
6. Click on **"Browse my computer for driver software"**.
7. Browse and find the folder called "xbox nui motor" in the extracted OpenKinect Project (e.g. D:\OpenKinect\OpenKinect-libfreenect-4a159f8\platform\windows\inf)
8. Continue and Windows will ask for your permission to install the driver.
9. After a few seconds, the driver installation for "xbox nui motor" should be done. Another unknown USB device "xbox nui audio" and "xbox nui camera" will be discovered after the driver installation.
10. Repeat step 6-8 for "xbox nui audio" and "xbox nui camera".
11. After all the drivers are installed, the LED on Kinect should be flashing.

## Compile the library

Like compiling OpenCV, we use CMake to generate the Visual Studio solution files.

1. Open CMake-gui in the Windows Start menu.
2. Click the "Browse button".
3. Select the OpenKinect project (e.g. D:\OpenKinect\OpenKinect-libfreenect-4a159f8)
4. Click the "Browse Build".
5. Find a place to build the project or create a folder for it. (e.g. D:\OpenKinect\OpenKinect-libfreenect-4a159f8\vs2008)
6. Click the "Configure" button.
7. In the drop-down menu of the pop-up window, choose Visual Studio 9 2008 and "finish"
8. After a few seconds, CMake will report error but it is OK.
9. Check the "Group" and "Advance" box under "Browse Build"
10. Expand the "LIBUSB" entries
11. "LIBUSE\_1\_INCLUDE\_DIR" should be pointed to the include folder extracted from libusb (e.g. D:\OpenKinect\libusb-win32-bin-1.2.4.0\include)
12. "LIBUSE\_1\_LIBRARY" should be pointed to the libush.lib (e.g. D:/OpenKinect/libusb-win32-bin-1.2.4.0/lib/msvc/libusb.lib). DO use the .lib file under the msvc folder.
13. Expand the "THREADS" entries

14. "THREADS\_PTHREADS\_INCLUDE\_DIR" should be pointed to the include folder extracted from pthread-win32 in the pre-built folder (e.g. D:\OpenKinect\pthread\Pre-built.2\include)
15. "THREADS\_PTHREADS\_WIN32\_LIBRARY" should be pointed to pthreadVC2.lib (e.g. D:/OpenKinect/pthread/Pre-built.2/lib/pthreadVC2.lib)
16. Expand the BUILD entries.
17. Uncheck the BUILD\_FAKENECT entry as it is not supported in Windows currently.
18. Click the configure button again.
19. Expand the newly added entry: GLUT
20. GLUT\_INCLUDE\_DIR should be pointed to the include folder of Visual Studio VC (e.g. C:\Program Files\Microsoft Visual Studio 9.0\VC\include)
21. GLUT\_glut\_LIBRARY should be pointed to the glut32.lib directly (e.g. C:/Program Files/Microsoft Visual Studio 9.0/VC/lib/glut32.lib)
22. Click the configure button again.
23. There should be no red highlighted entry. If you have any problem with the set up, you can reference the image at the end of this guideline.
24. Click the "**Generate**" button.
25. Go to the folder where the Visual Studio Solution file is generated. (e.g. D:\OpenKinect\OpenKinect-libfreenect-4a159f8\vs2008)
26. Open the solution file and choose "**Build**" → "**Build Solution**"
27. Sometimes, you may encounter build error at the end of the compilation. Try clicking the "Build Solution" again. It may solve the problem.
28. After compiling the library, right click the "**INSTALL**" project in the Solution Explorer and choose "**Build**".
29. After that, the examples, include files and libraries are copied to "C:\program files\libfreenect"
30. Open this folder and go to the "lib" folder.
31. Copy all the .dll files into "C:\windows\system32"
32. Go back to the "**bin**" folder. (e.g. C:\program files\libfreenect\bin)
33. Double click the glview.exe to run the example.
34. After a few seconds, you should see the depth map as well as the RGB image on the screen. You can select the image window and then press "w", "s" and "x" on your keyboard to control the servo motor in kinects. "w" to tile up and "x" to tile down. "s" to reset the tile angle. "1" to "6" set the LED light and "f" to reset the cameras.
35. If you see a white screen but you can use the keys to control the keyboard, then you may install a newer driver for your display card. It is essential for the machine in SHB122.

**CMake 2.8.0 - D:/OpenKinect/OpenKinect-libfreenect-4a159f8/vs2008**

File Tools Options Help

Where is the source code:

Where to build the binaries:

Search:

Name	Value
⊕ Ungrouped Entries	
⊖ BUILD	
... BUILD_AS3_SERVER	<input type="checkbox"/>
... BUILD_CPP	<input checked="" type="checkbox"/>
... BUILD_CV	<input type="checkbox"/>
... BUILD_C_SYNC	<input checked="" type="checkbox"/>
... BUILD_EXAMPLES	<input checked="" type="checkbox"/>
... BUILD_FAKENECT	<input type="checkbox"/>
... BUILD_PYTHON	<input type="checkbox"/>
⊕ CMAKE	
⊕ GLUT	
⊖ LIBUSB	
... LIBUSB_1_INCLUDE_DIR	D:/OpenKinect/libusb-win32-bin-1.2.4.0/include
... LIBUSB_1_LIBRARY	D:/OpenKinect/libusb-win32-bin-1.2.4.0/lib/msvc/libusb.lib
⊖ OPENGL	
... OPENGL_gl_LIBRARY	opengl32
... OPENGL_glu_LIBRARY	glu32
⊖ THREADS	
... THREADS_PTHREADS_INCLUDE_DIR	D:\OpenKinect\pthread\Pre-built.2\include
... THREADS_PTHREADS_WIN32_LIBRARY	D:/OpenKinect/pthread/Pre-built.2/lib/pthreadVC2.lib