

# Goblin XNA v4.1 Installation Guide

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June 26, 2012

**Note:** If you have any difficulty with these installation steps, please post your questions to the discussion board at <http://goblinxna.codeplex.com>. (NOTE: Please do not send your questions by email.)

**Step 0: Download Goblin XNA v4.1** from <http://goblinxna.codeplex.com>. Unzip GoblinXNAv4.1.zip.

**Step 1: Download and install either (a) Microsoft Visual Studio 2010 Professional Edition [preferred] or (b) Microsoft Visual C# & C++ 2010 Express Edition. Do either step a or step b.**

(a) Download Microsoft Visual Studio 2010 Professional Edition. Once you have installed it, *please be sure to get Service Pack 1 from the Microsoft webpage*. If you are a student or educator at an institution with a Microsoft Dreamspark subscription, you can download Visual Studio 2010 Professional Edition from [Microsoft DreamSpark](#) for free.

OR

(b) Alternatively, if you do not have access to Visual Studio 2010 Professional Edition, you can use Microsoft Visual C# 2010 Express Edition, which is free. Download Microsoft Visual Studio 2010 C# Express Edition at no charge from <http://www.microsoft.com/eXpress/download/#webInstall> and install it. You will have to register the product in order to use it for more than 30 days. (Registration is free, but you will need a free Microsoft .NET Passport account to register the product.) If you use the Havok physics library and are using Microsoft Visual Studio 2010 C# Express Edition, then you will also need Microsoft Visual C++ 2010 Express Edition to compile the wrapper we provide.

**Step 2: Download and Install XNA Game Studio 4.0.**

Download XNA Game Studio 4.0 from <http://www.microsoft.com/download/en/details.aspx?id=23714> and install it.

**Step 3: Download all necessary packages needed to run all of the tutorials. (These packages are not included with Goblin XNA because the package owners require that they be downloaded from their sites.) NOTE: You can compile Goblin XNA out of the box without any of the following packages. However, these packages are needed for running the tutorials.**

- (Needed for Tutorials 4, 5, 8, 9, 10, and 12) Download “Newton Game Dynamics SDK 1.53” for Win32 from <http://www.newtondynamics.com/downloads.html>. (Please be sure to download v1.53, not a later or earlier version!) After unzipping the file, run “setup.exe” to install the SDK. Once it has been installed, copy

**Newton.dll** from *NewtonSDK\sdk\dll* (the directory where you installed the Newton SDK; for example, under Windows 7, this defaults to *C:\Program Files (x86)*) to the *GoblinXNAv4.1\dlls\unmanaged* directory.

- (Needed for Tutorial 5) If you would like to use Havok Physics instead of (or in addition to) the Newton Game Dynamics engine, please download it from <http://www.havok.com>. It is free for trial and non-commercial use. First, unzip the downloaded file. Then, open *HavokWrapper.sln* under the *GoblinXNAv4.1\wrappers\HavokWrapper* directory (The current wrapper implementation is for *hk710r1*, and it wraps only a very limited set of functions needed for simple simulations). Compile this project and copy the generated *HavokWrapper.dll* from the *GoblinXNAv4.1\wrappers\HavokWrapper\Release* directory to the *GoblinXNAv4.1\dlls\unmanaged* directory. When you compile, make sure that the “Additional Include Directories” under Configurations Properties → C/C++ → General and the “Additional Library Directories” under Configurations Properties → Linker → General in the project settings have the correct path for your Havok directory.
- (Needed for Tutorial 8) Obtain the ALVAR tracking library 2.0.0 (basic version) and the accompanying version of OpenCV 2.4.0 from the VTT Technical Research Centre website: <http://virtual.vtt.fi/virtual/proj2/multimedia/alvar.html>. They will email you a link to download the necessary executables once you fill out their registration form. Make sure you download *alvar-2.0.0-sdk-win32-vs2010.exe* from their 2.0.0 directory and *opencv-2.4.0-win32-vs2010.exe* from their *opencv* directory (even if your PC uses Windows 7 64-bit edition). ALVAR is released under the Gnu Lesser General Public License v2.1. First, install OpenCV 2.4.0, which is required for running ALVAR 2.0.0, and then install ALVAR 2.0.0. Then, open *ALVARWrapper2.0.sln* under the *GoblinXNAv4.1\wrappers\ALVARWrapper2.0* directory (You will need either Visual Studio 2010 Professional Edition or Visual C++ 2010 Express Edition to open this solution file, as well as ALVAR project files). Change the compilation configuration to *Release* from *Debug* and then compile this project and copy the generated **ALVARWrapper.dll** from the *GoblinXNAv4.1\wrappers\ALVARWrapper2.0\Release* directory to the *GoblinXNAv4.1\dlls\unmanaged* directory. When you compile, make sure that the “Additional Include Directories” under Configurations Properties → C/C++ → General and the “Additional Library Directories” under Configurations Properties → Linker → General in the project settings have the correct path for the ALVAR 2.0.0 and OpenCV 2.4.0 installations. Finally, copy the **alvar200.dll** and **alvarplatform200.dll** from the *ALVAR 2.0.0 sdk win32 vs2010\bin* directory to the *GoblinXNAv4.1\dlls\unmanaged* directory, and **opencv\_calib3d240.dll**, **opencv\_core240.dll**, **opencv\_features2d240.dll**, **opencv\_flann240.dll**, **opencv\_highgui240.dll**, **opencv\_imgproc240.dll**, **opencv\_legacy240.dll**, **opencv\_ml240.dll**, and **opencv\_video240.dll** from the *OpenCV 2.4.0 win32 vs2010\bin* directory to the *GoblinXNAv4.1\dlls\unmanaged* directory.
- (Needed for Tutorial 15) Obtain [OpenCV 2.1](#) (*OpenCV-2.1.0-win32-vs2008.exe*) and run the installer. Convert the VS2008 project to VS2010 project and recompile the project. Copy **cv210.dll**, **cvaux210.dll**, **cxcore210.dll**, and **highgui210.dll** from the *OpenCV2.1\bin* directory to the *GoblinXNAv4.1\dlls\unmanaged* directory.

#### Step 4: Download the following optional packages if you need them for your project.

- (Needed for Kinect) Download the latest Microsoft Kinect SDK (version 1.0.3.190) from <http://www.kinectforwindows.org/download/> and install it. Open the “*GoblinXNA (Windows).sln*” file in *GoblinXNA4.1\src* directory and add Microsoft.Kinect to your reference (can be found under .NET tab). Finally, add KinectMSCapture.cs to your project under Device.Capture directory and recompile GoblinXNA.
- (Needed for Point Grey Camera software version 2.2.x series) Download FlyCapture v2.2 for 32-bit version (even if your operating system is 64-bit) under “Software and Drivers for Imaging Products (Windows operating systems)” from [http://www.ptgrey.com/support/downloads/download\\_new.asp](http://www.ptgrey.com/support/downloads/download_new.asp) and install it. Please note that you will need to register and log in to download it. Open the “*GoblinXNA (Windows).sln*” file in *GoblinXNA4.1\src* directory and add “FlyCapture2Managed.dll” to your reference (can be found under *C:\Program Files (x86)\Point Grey Research\FlyCapture2\bin*). Finally, add PointGreyCapture2.1.cs to your project under Device.Capture directory and recompile GoblinXNA. Then, in your project (NOT in GoblinXNA project), you will need to add FlyCapture2.dll (can be found in the same directory as the managed DLL) to your project and set “Copy to Output” property to “Copy if newer”.
- (Needed for VRPNTracker) Download Vrpnet 1.1.1 from <http://wwwx.cs.unc.edu/~chrisv/vrpnnet/downloads#attachments>. You only need the binary. Unzip Vrpnet-1.1.1-Binary.zip and find the Vrpnet.dll under *Vrpnet-1.1.1\Release-VC9* directory. Open the “*GoblinXNA (Windows).sln*” file in *GoblinXNA4.1\src* directory and add this Vrpnet.dll to your reference. Finally, add VRPNTracker.cs to your project under Device.VRPNTracker (this directory will automatically show if you add this code as link) and recompile GoblinXNA.  
**NOTE:** As noted in <http://wwwx.cs.unc.edu/~chrisv/vrpnnet/blog>, you will need to add an app.config file to your project (NOT to GoblinXNA project) in order to use this library in .NET 4.0.
- (Needed if you want to use MataliPhysics) Download MataliPhysics 1.8 from <http://www.mataliphysics.com/Download.aspx>. After installed, copy MataliPhysics.dll from *Komires\MataliPhysics\MataliPhysicsXNA\MataliPhysics\x86* (the directory where you installed the Matali SDK) to the *GoblinXNAv4.1\dlls\managed\* directory. Finally, add MataliCloth.cs, MataliObject.cs, MataliPhysics.cs, and MataliVehicle.cs classes to your project under Physics.Matali (this directory will automatically show if you add these classes as link) and recompile GoblinXNA.  
**NOTE:** To run Tutorial 5 with Matali instead of Newton, uncomment USE\_MATALI macro on line 36 of Tutorial5.cs file.

Now, you are ready to run all of the Goblin XNA tutorials. First, compile GoblinXNA by opening the “*GoblinXNA (Windows).sln*” file under *GoblinXNA4.1\src* and build the solution. GoblinXNA.dll will be generated under the *GoblinXNAv4.1\bin* directory.

Open the “*Tutorials (Windows).sln*” in *GoblinXNAv4.1\tutorials* directory. If you have all necessary files, the solution should build successfully, and you can start experimenting with each tutorials.

## FOR WINDOWS PHONE DEVELOPMENT

**Step 5: Download Microsoft Zune from <http://www.zune.net/> and install it on your system.**

**Step 6: Download and Install Windows Phone SDK 7.1 (or later)**

Download the Windows Phone 7.1 (or later) SDK from <http://www.microsoft.com/en-us/download/details.aspx?displaylang=en&id=27570> and install it.

**Step 7: Download the necessary packages needed to run the Goblin XNA for Windows Phone tutorials (NOTE: If you have already downloaded and installed Matali Physics in Step 4, you don't need to download and install it again. Just do the DLL copy part)**

- (Needed for Tutorials 4, 5 and 9). Download "Matali Physics 1.8" from <http://www.mataliphysics.com/Download.aspx>. After installed, copy MataliPhysics.dll from Komires\MataliPhysics\MataliPhysicsPhone\MataliPhysics\Phone (the directory where you installed the Matali SDK) to the *GoblinXNAv4.1\dlls\managed\Windows Phone* directory.

Now, you are ready to run all of the Goblin XNA tutorials for Windows Phone. First, compile the mobile version of GoblinXNA by opening the "*GoblinXNA (Phone).sln*" file under *GoblinXNA4.1\src* and build the solution. *GoblinXNA.dll* will be generated under the *GoblinXNAv4.1\bin\Windows Phone* directory.

Open the "*Tutorials (Phone).sln*" in *GoblinXNAv4.1\tutorials* directory. If you have all necessary files, the solution should build successfully, and you can start experimenting with the tutorials.

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**Note:** *We did not include in our distribution any classes or tutorials that use vision-based tracking on Windows Phone, since we currently know of no tracking library for Windows Phone that is compatible with our BSD license and with the use of packages for which source code is not available. We will include support for vision-based tracking on Windows Phone once an appropriate library becomes available.*

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