Goblin XNA v4.0 Installation Guide

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February 9, 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 v4.0 from http://goblinxna.codeplex.com. Unzip GoblinXNAv4.0.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 1.5: If you use the ALVAR tracking library, then you will also need Visual Studio 2008 Professional Edition or Microsoft Visual C++ 2008 Express Edition to compile the sample projects provided in the ALVAR distribution package and the wrapper we provide. (**NOTE:** If you compile our ALVAR wrapper with Visual Studio 2010, it will compile fine and generate the DLL, but the compiled DLL will not work.)

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. 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 *GoblinXNAv4.0\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 *GoblinXNAv4.0\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 *GoblinXNAv4.0\wrappers\HavokWrapper\Release* directory to the *GoblinXNAv4.0\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 (basic version) from the VTT Technical Research Centre website: http://virtual.vtt.fi/virtual/proj2/multimedia/alvar.html. This library is free only for trial and non-commercial use. (A professional version of the library, with additional features, is available for commercial use by contacting alvar.info@vtt.fi.) First, install ALVAR 1.5.0 and download and install OpenCV 1.0, which is required for running ALVAR 1.5.0. (You will need to restart your computer after installing OpenCV 1.0. to make sure that your path environment variable is set correctly.) Then, open ALVARWrapper1.5.sln under the *GoblinXNAv4.0\wrappers\ALVARWrapper1.5* directory (You will need either Visual Studio 2008 Professional Edition or Visual C++ 2008 Express Edition to open this solution file, as well as ALVAR project files). Compile this project and copy the generated **ALVARWrapper.dll** from the *GoblinXNAv4.0\wrappers\ALVARWrapper1.5\Release* directory to the *GoblinXNAv4.0\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 1.5.0 and OpenCV 1.0 installations. Finally, copy the **alvar150.dll** and **alvarplatform150.dll** from the *Alvar1.5.0\bin\msvc90* directory to the *GoblinXNAv4.0\dlls\unmanaged* directory, and **cv100.dll**, **cvaux100.dll**, **cvcam100.dll**, **cxcore100.dll**, and **highgui100.dll** from the *OpenCV1.0\bin* directory to the *GoblinXNAv4.0\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 *GoblinXNAv4.0\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 *GoblinXNA4.0\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 and install it. Please note that you will need to register and log in to download it. Open the *"GoblinXNA (Windows).sln"* file in *GoblinXNA4.0\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 VrpnNET 1.1.1 from http://wwwx.cs.unc.edu/~chrisv/vrpnnet/downloads#attachments. You only need the binary. Unzip VrpnNet-1.1.1-Binary.zip and find the VrpnNet.dll under *VrpnNet-1.1.1\Release-VC9* directory. Open the *"GoblinXNA (Windows).sln"* file in *GoblinXNA4.0\src* directory and add this VrpnNet.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.

Now, you are ready to run all of the Goblin XNA tutorials. First, compile GoblinXNA by opening the *"GoblinXNA (Windows).sln"* file under GoblinXNA*src* and build the solution. GoblinXNA.dll will be generated under the *GoblinXNAv4.0\bin* directory.

Open the *"Tutorials (Windows).sln"* in *GoblinXNAv4.0\tutorials* directory. If you have all of the necessary files, the solution should build successfully, and you can start experimenting with each of the tutorials.