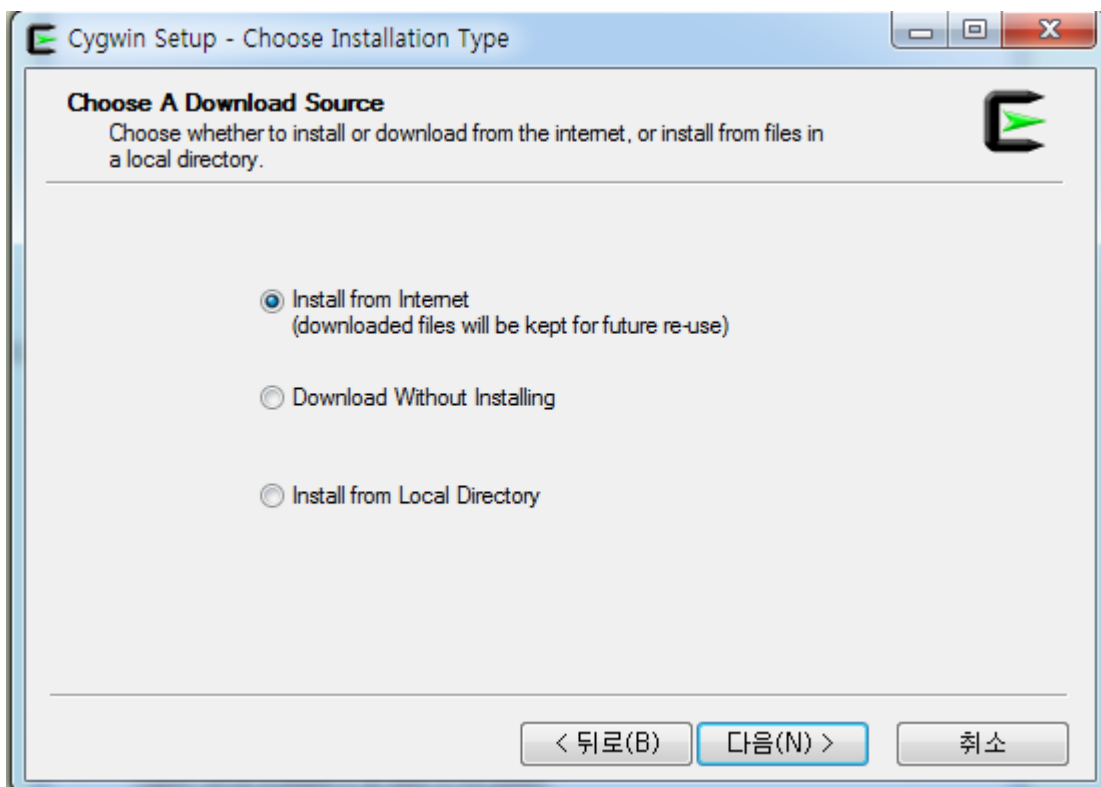


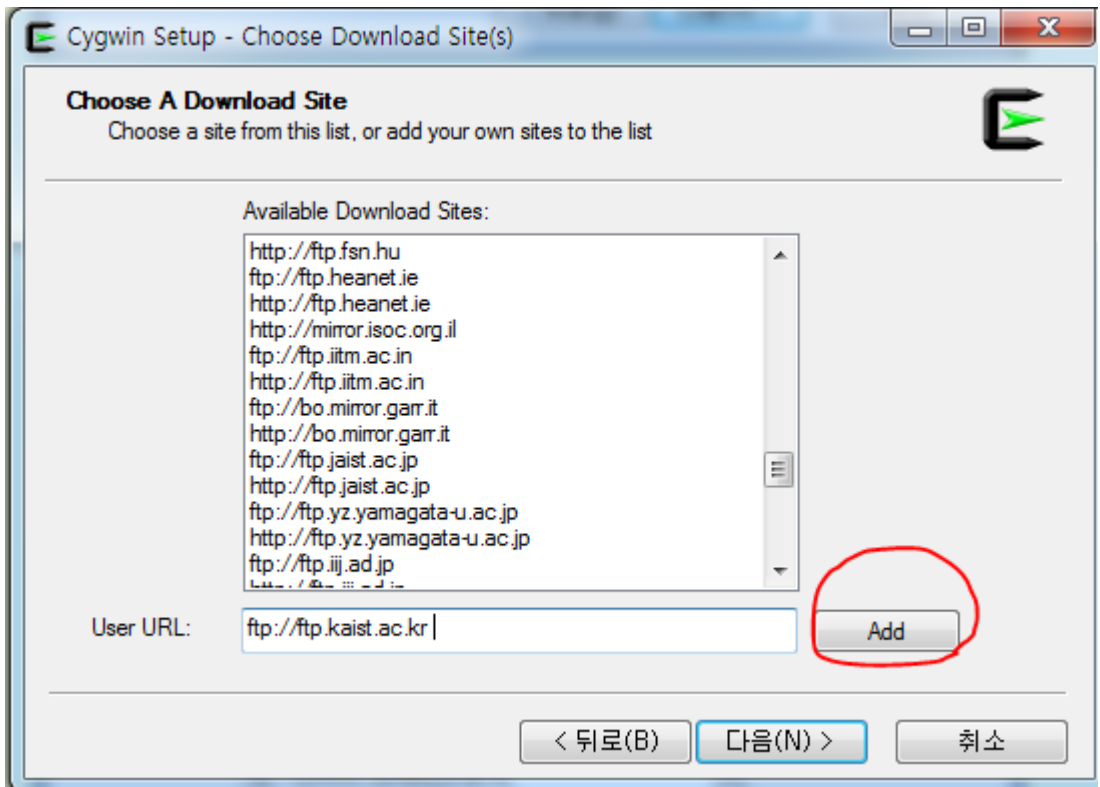
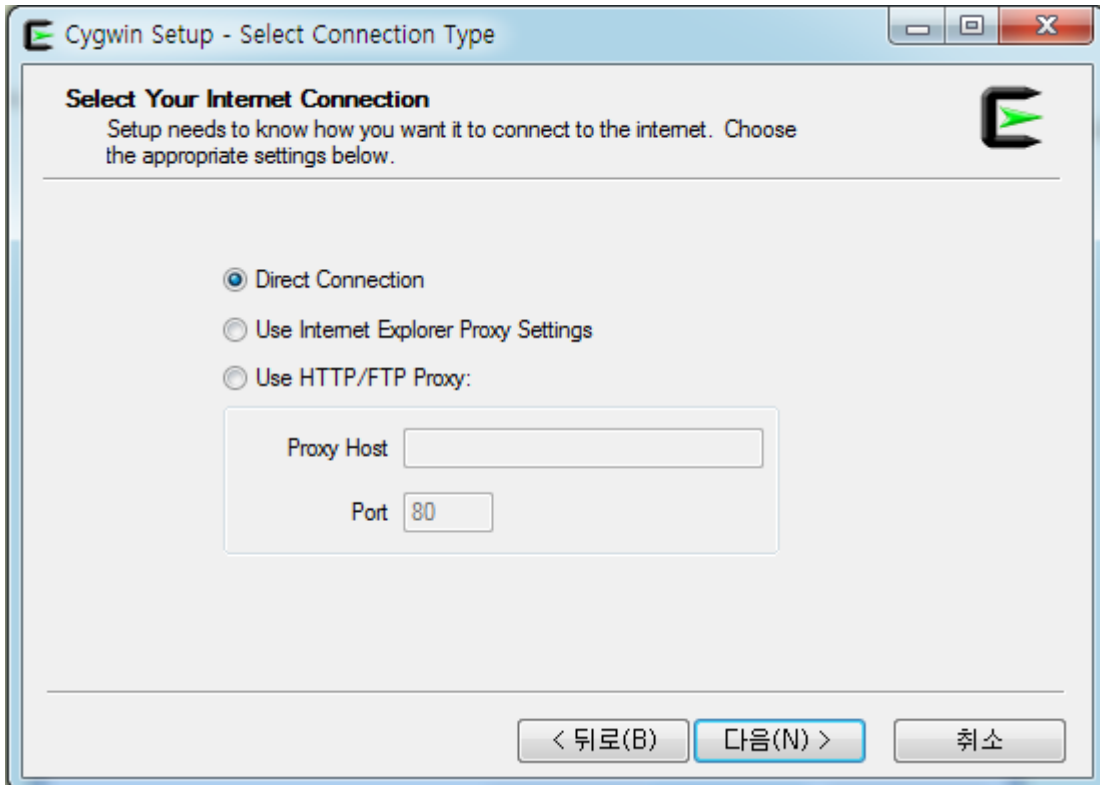
CS580 Graduate-Level Computer Graphics

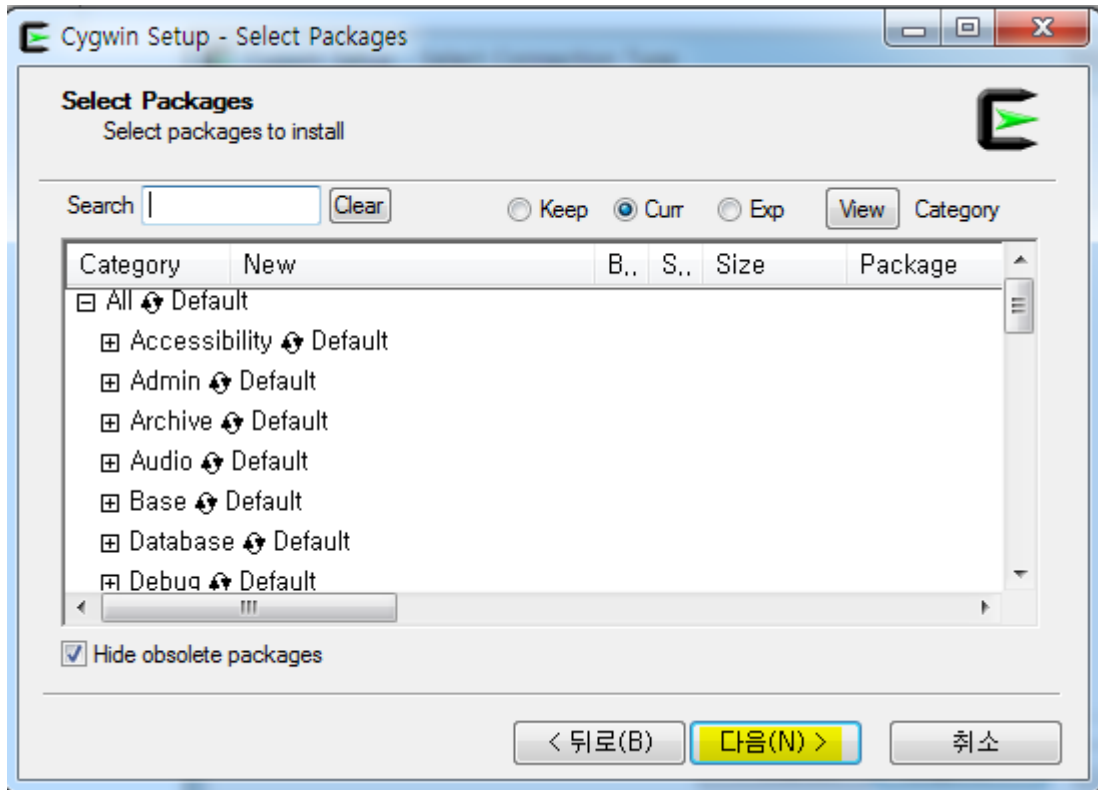
Hints for PA1: provided by Soomin Kim, 김수민

PBRT Setup

- 1) Install Visual Studio (The file is in kftp.kaist.ac.kr)
- 2) Install Cygwin
 - 2)-1 download Cygwin (setup.exe) from <http://cygwin.com/install.html>
 - 2)-2 Setup Cygwin







3) Go to <http://www.pbrt.org/downloads.php>

Matt Pharr Greg Humphreys

PHYSICALLY BASED RENDERING

From Theory to Implementation

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DOWNLOADS

pbrt Version 2

The implementation of pbrt-v2, the version of the system that accompanies the second edition of the book, has now been released. In addition to the source code to the system, this distribution also includes exporters from a number of modeling systems and example scenes. (The Windows version also source code and MSVC build rules for the OpenEXR libraries.) See the [changelog](#) for the list of changes since the initial alpha release of pbrt-v2 in October of 2009.

The best way to track the latest version of the system is via the [git](#) SCM system. The pbrt git repository can be cloned from [git://github.com/mmp/pbrt-v2.git](https://github.com/mmp/pbrt-v2.git). (See the [pbrt page on github](#) for more information.)

Alternatively, a recent snapshot of the latest version on github is available in separate packages for Windows and Linux/Mac OSX. The following snapshot represents [git commit 4c20ad41a8b51db24d08cc6443dc338fcdde9](#) at Tue Jan 22 10:35:59 2013 -0800

- [pbrt-v2-src.tar.bz2](#), for Linux and OSX (12MB)
- [pbrt-v2-src.zip](#), for Windows (14MB)

For Linux and OSX, the OpenEXR image libraries are not included and must be downloaded and installed separately if they aren't already available on your system. Most modern package management systems have an option to install OpenEXR.

Example Scenes

A number of interesting scenes are also available to use with pbrt; see the [separate page](#) for information about how to download these scenes as well as rendered images of them.

Older Source Code Updates

The fourth patch release to pbrt version 1, fixing numerous mostly-small errors found since the book's release, and including the author-supplied plugins, is now available. The [release notes](#) describe all of the changes in this release (and previous releases). Source code is available in separate packages for Windows and Linux/Mac OSX:

- [pbrt-src-1.05.tar.gz](#), for Linux and OSX (370kB)
- [pbrt-src-1.05.zip](#), for Windows (620kB)

4) Download pbrt source file

5) Open the **pbrt.sln** file, which is in `\pbrt-v2-src\pbrt-v2\src\pbrt.vs2010` (it maybe pbrt.vs2008)

6) Solution build(F7)

7) Select(decide) the scene you want to render from `\pbrt-v2-src\pbrt-v2\scenes`

anim-killeroos-moving.pbrt	2013-01-22 오전...	PBRT 파일	2KB
anim-moving-reflection.pbrt	2013-01-22 오전...	PBRT 파일	2KB
bunny.pbrt	2013-01-22 오전...	PBRT 파일	1KB
killeroo-simple.pbrt	2013-01-22 오전...	PBRT 파일	2KB
metal.pbrt	2013-01-22 오전...	PBRT 파일	2KB
pbrt-teapot.pbrt	2013-01-22 오전...	PBRT 파일	544KB
ss-envmap.pbrt	2013-01-22 오전...	PBRT 파일	2KB

(For example pbrt-teapot.pbrt)

8) Run windows command window (using cmd)

9) Move to the folder, which contains pbrt.exe (bin folder usually contains it)

For example

```
C:\Windows\system32\cmd.exe
Microsoft Windows [Version 6.1.7600]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\Soomin>cd C:\Users\Soomin\Downloads\pbrt-v2-src\pbrt-v2\bin
```

The specific path can be different according to the folder you put pbrt files.

10) 'pbrt -h' shows usage of input (help command)

```
C:\Users\Soomin\Downloads\pbrt-v2-src\pbrt-v2\bin>pbrt -h
usage: pbrt [--cores n] [--outfile filename] [--quick] [--quiet] [--verbose] [-
-help] <filename.pbrt> ...
```

11) Render the scene file that you decide step 7 using the usage above

`pbrt --outfile <the path you want to store the result image> <The image you want to render>`

```
C:\Windows\system32\cmd.exe
Microsoft Windows [Version 6.1.7600]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\Soomin>cd C:\Users\Soomin\Downloads\pbrt-v2-src\pbrt-v2\bin

C:\Users\Soomin\Downloads\pbrt-v2-src\pbrt-v2\bin>pbrt --outfile ..\..\test.exr
C:\Users\Soomin\Downloads\pbrt-v2-src\pbrt-v2\scenes\pbrt-teapot.pbrt
pbrt version 2.0.0 of Mar  8 2013 at 14:32:37 [Detected 4 core(s)]
Copyright (c)1998-2012 Matt Pharr and Greg Humphreys.
The source code to pbrt (but *not* the book contents) is covered by the BSD Lice
nse.
See the file LICENSE.txt for the conditions of the license.
Rendering: [+++++] (5.1s)
```

12) After plus mark filled all, you can find the result exr image in the folder you assign
exr file can be open using **Photoshop**

13).You can find more format information in the **fileformat.pdf** file, which is in `\pbrt-
v2-src\pbrt-v2\docs`

Hints for PA1: provided by TA, UiTae Kim

1. Don't use EstSoft's Alzip to unzip pbrt.zip.

Alzip's unzip performance is not good. When you use alzip to unzip this project file, it cannot parse perfectly, so you may not compile this project.

To avoid this problem, you may use 7-zip instead of alzip. You can download this from <http://www.7-zip.org>. It is freeware.

2. You can use Cygwin instead of cmd.

You can download Cygwin from <http://cygwin.com/install.html>. It is Linux-like environment runs on Windows. You can use bash like in Linux. But makefile didn't work well in my case, so you better compile the project using Microsoft Visual Studio.

3. Rendering takes longer than 5 seconds.

Pbrt is ray tracing rendering system, so it takes long as you learned in class. In the screenshot given in hint, it took only 5.1 seconds. It is extremely fast rendering speed, so if you think your system is crashed, just wait longer.

Hints for PA1: provided by Sunwoo Kim

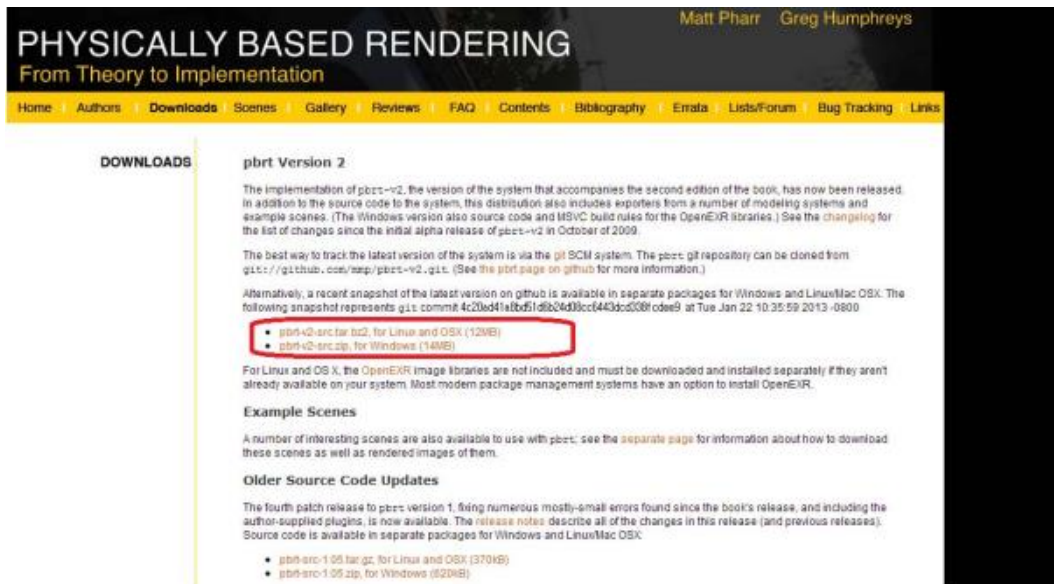
PBRT Setup

1. Visual Studio Setup (The file is in kftp.kaist.ac.kr)

사실 맥이나 우분투 같이 리눅스 운영체제에서 하셔도 되지만, 제가 시도해 본 바로는 그 PBRT하나를 인스톨하기 위해서 수많은 라이브러리들 (대충 10개 이상 되더라고요...) 을 설치해야 하기 때문에 윈도우로 하세요 제발...

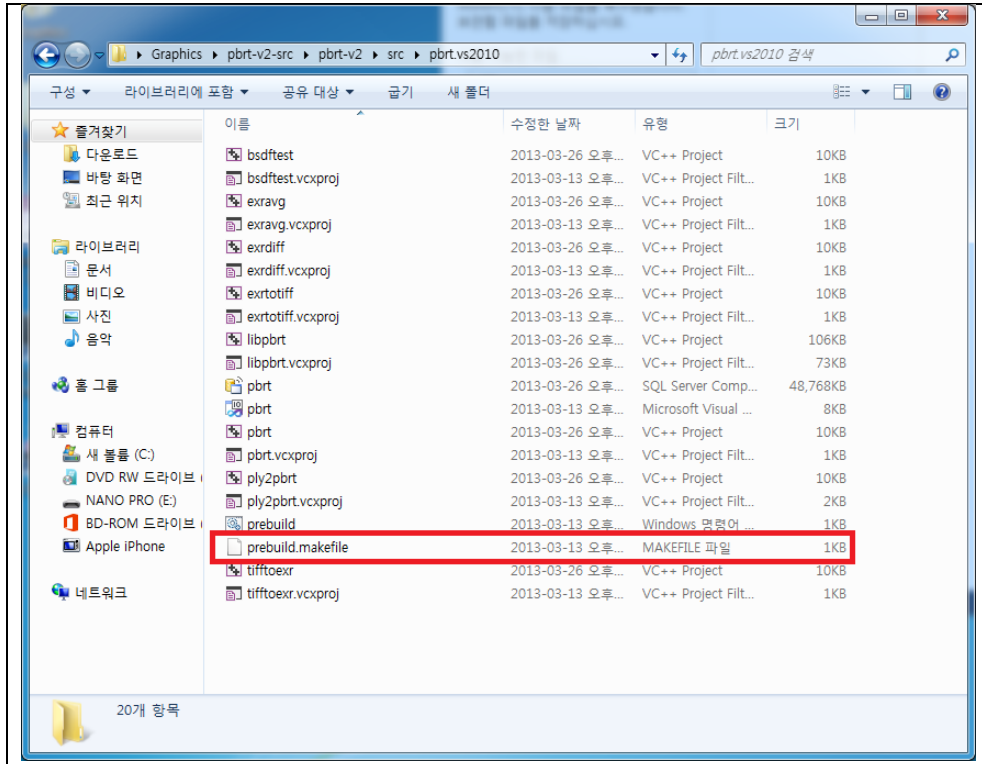
2. Download PBRT solution

<http://www.pbrt.org/downloads.php> (download site)

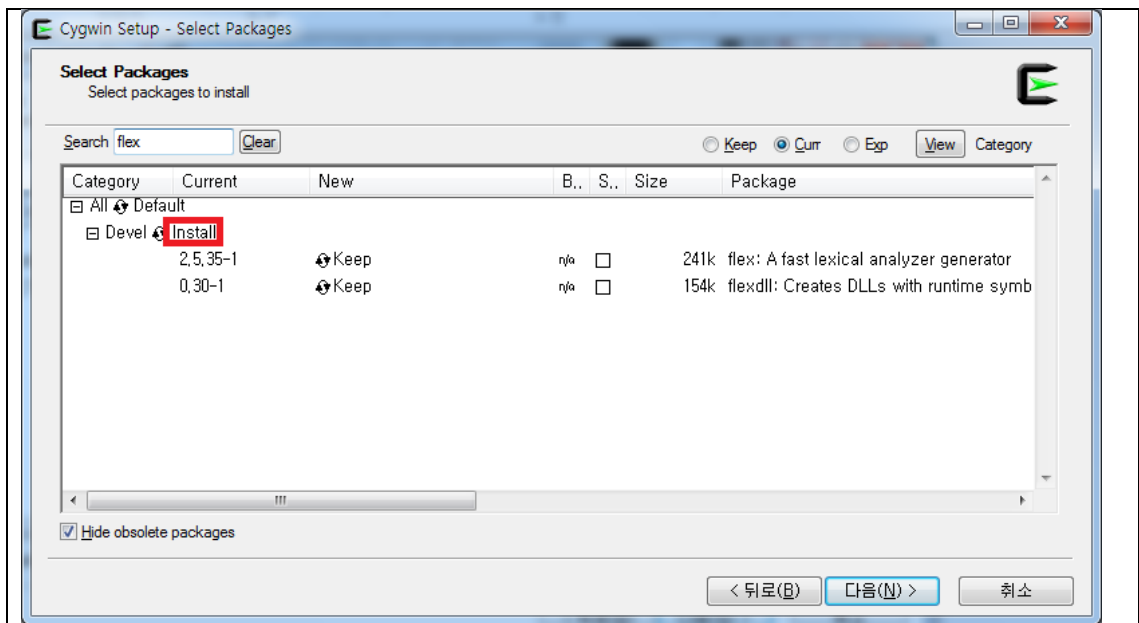


3. Setup Cygwin (이거 필수적으로 설치 하셔야 합니다)

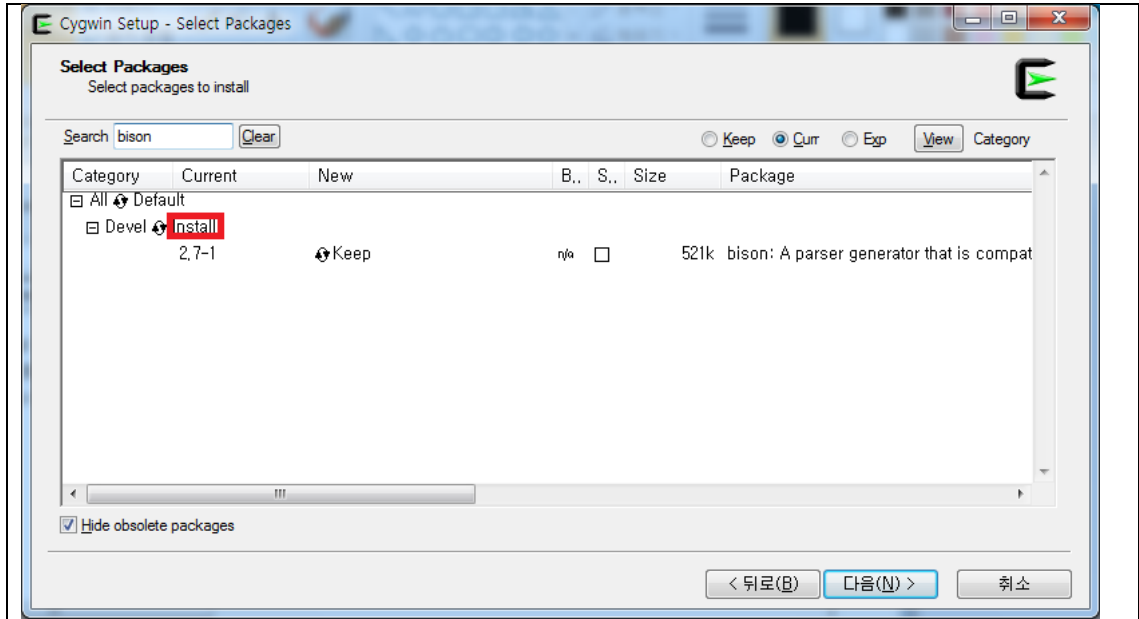
이 Cygwin을 설치하는 이유는 flex와 bison을 설치하기 위해서입니다. 사실 컴파일러 시간 이후로 이 틀을 접할 것이라곤 생각도 못했지만, 여러분들이 컴파일을 하는 도중 프로젝트 파일 안에 보면 prebuild.makefile 이 보이고 이 소스 안에 보면 flex와 bison의 경로가 하드 코딩 되어 있습니다. 그래서 그 경로에서 flex와 bison을 가져다 쓰는데 (binary로요) Cygwin을 설치하시고 flex와 bison을 까시면 그 경로에 기본적으로 생성이 되게 됩니다.



조교님이 제시해주신 MSYS를 설치 후에 그 binary경로를 path에 추가해 보았는데요 제가 버전이 낮은 걸 깔았는지 안에 bison과 flex가 없어서 그냥 Cygwin으로 설치하는 방법을 올립니다.



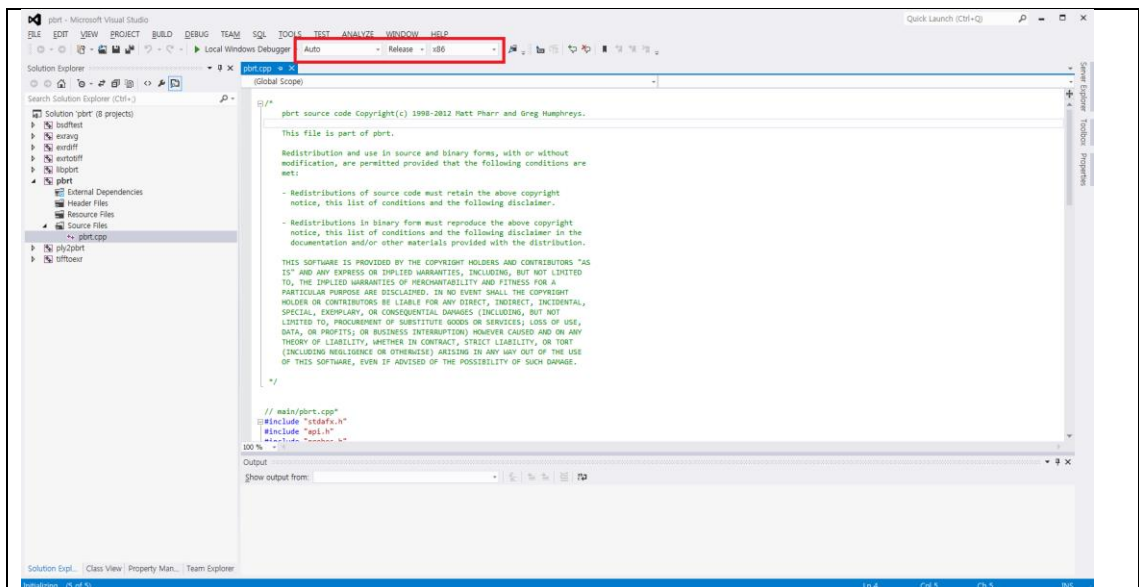
Cygwin 설치 계속 다음다음 누르시다가 패키지 고를 때 검색창에 flex를 검색 후 Default를 Install로 바꿔 줍니다. (체크가 일단 되면 그 패키지를 설치한단 뜻이에요) 그 후에 bison을 검색해 마찬가지로 체크해 줍니다.



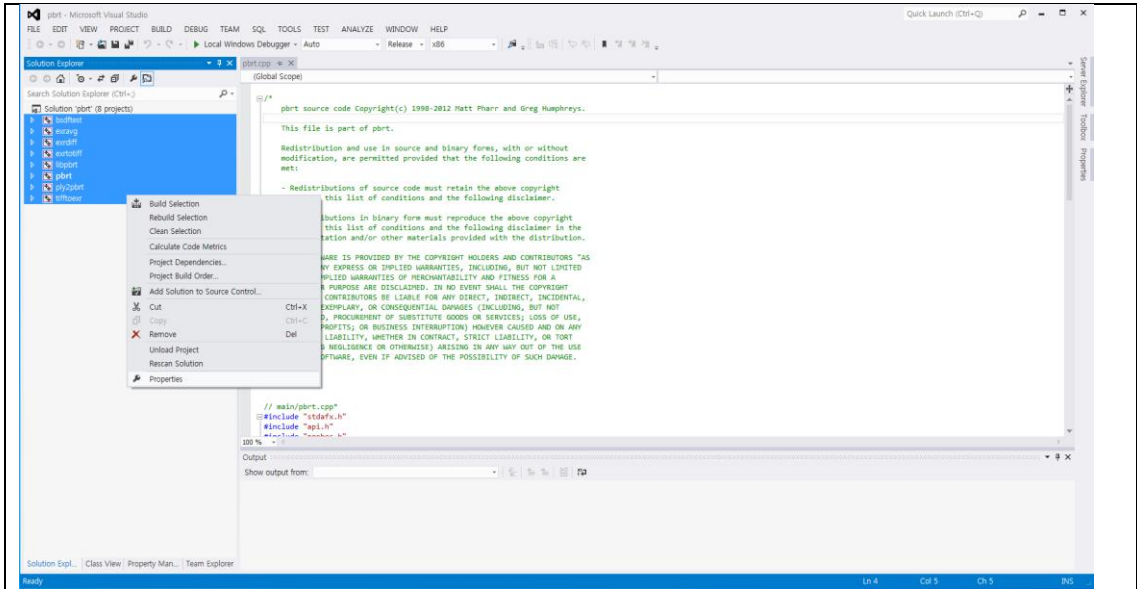
이렇게 설치를 하시게 되면 C드라이브에 Cygwin폴더가 생기게 되고 폴더 내의 bin폴더에 들어가시면 아래와 같이 flex와 bison파일이 생깁니다. (있나 확인해 보세요 스샷찍기 귀찮음) 여기까지 하셨으면 일단 빌드에 필요한 패키지는 전부 설치하신 겁니다.

4. Build in VS 2012 (버전 낮아도 상관 없어요)

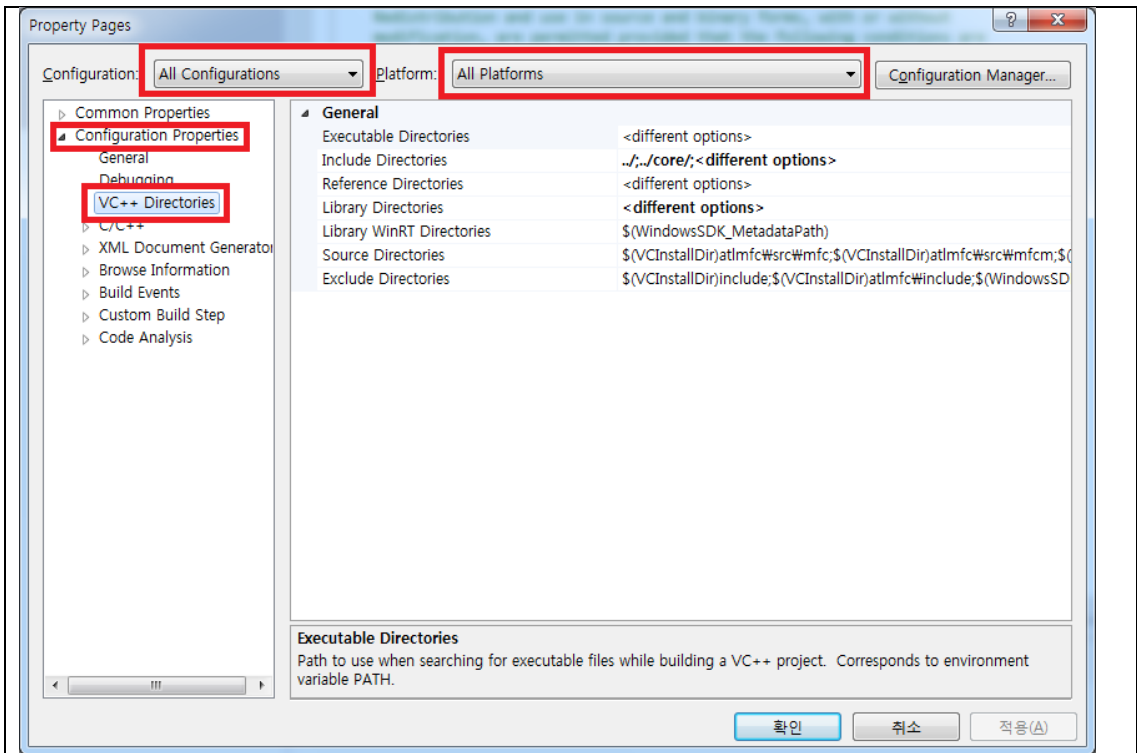
일단 비주얼 스튜디오를 켜시고 프로젝트를 로드 합니다. 그 후에 아래와 같이 설정을 해 줍니다. (2012 버전을 쓰시는 분은 2010 프로젝트를 로드하시고 프로젝트 업데이트를 진행하시면 됩니다.)



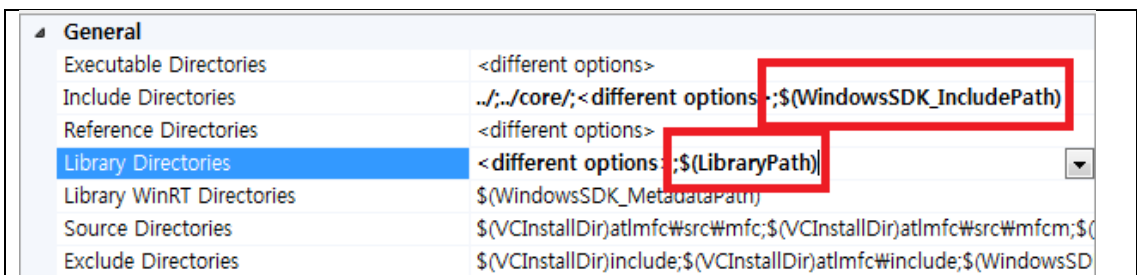
먼저 이거 해줘야되요 안그러면 32비트 64비트 에러 와장창남 자꾸 libpbrt없다는 에러 나는 이유가 여기서 컴파일이 안되서 라이브러리를 안뵈어서 그런거예요



그 다음엔 전체 프로젝트를 선택하시고 property에 들어가세요



네모 친거 다 그림처럼 세팅하세요

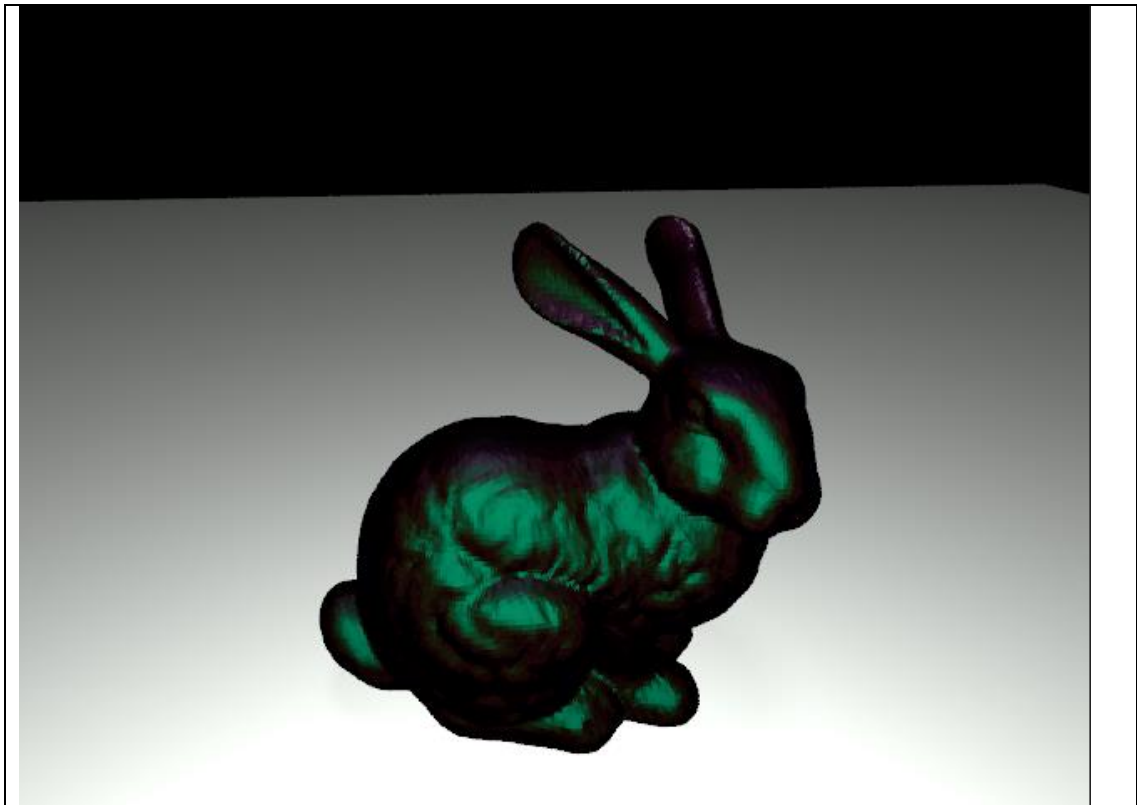


그 다음에 안에 메뉴에 다음과 같이 수정해주세요

그 다음 빌드하세요

```
Output
Show output from: Build
C:\Program Files\Microsoft Visual Studio\2010\VC\bin\amd64\vcbuild.exe
> pbrt.vcproj -> C:\Users\Sunwoo\Desktop\Graphics\pbrt-v2-src\pbrt-v2\src\pbrt.vs2010\amd64\bin\pbrt.exe
> Generating code
7> Finished generating code
> Finished generating code
> pily2pbrt.vcproj -> C:\Users\Sunwoo\Desktop\Graphics\pbrt-v2-src\pbrt-v2\src\pbrt.vs2010\amd64\bin\pily2pbrt.exe
> tiff2exr.vcproj -> C:\Users\Sunwoo\Desktop\Graphics\pbrt-v2-src\pbrt-v2\src\pbrt.vs2010\amd64\bin\tiff2exr.exe
----- Rebuild All: 8 succeeded, 0 failed, 0 skipped -----
```

성공했네요 T^T



이건 bunny.pbrt를 exr로 뽑아본건데... 이게 뭐야 T^T (뽑는 방법은 HINT 1 그대로 따라하시면 됩니당)