

# Instructions for Agent-Based Simulation Model “Energy Crops”

## 1.) Repast Download available at:

<http://repast.sourceforge.net/download.html>;

## 2) Click on Windows Installer as shown below:

### The Latest Repast Symphony Release

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Repast Symphony releases are hosted by SourceForge.net. Please download one of the files shown below and then click [here](#) for installation instructions:

- [Windows Installer](#)
- [Mac OS X ZIP Archive](#) (Please note that Mac OS X users need to install Java3D and JOGL as described [here](#))
- [Repast Symphony IDE update site for Eclipse](#)

## 3) Follow Installation Instructions

### Repast Symphony : 1 Installation

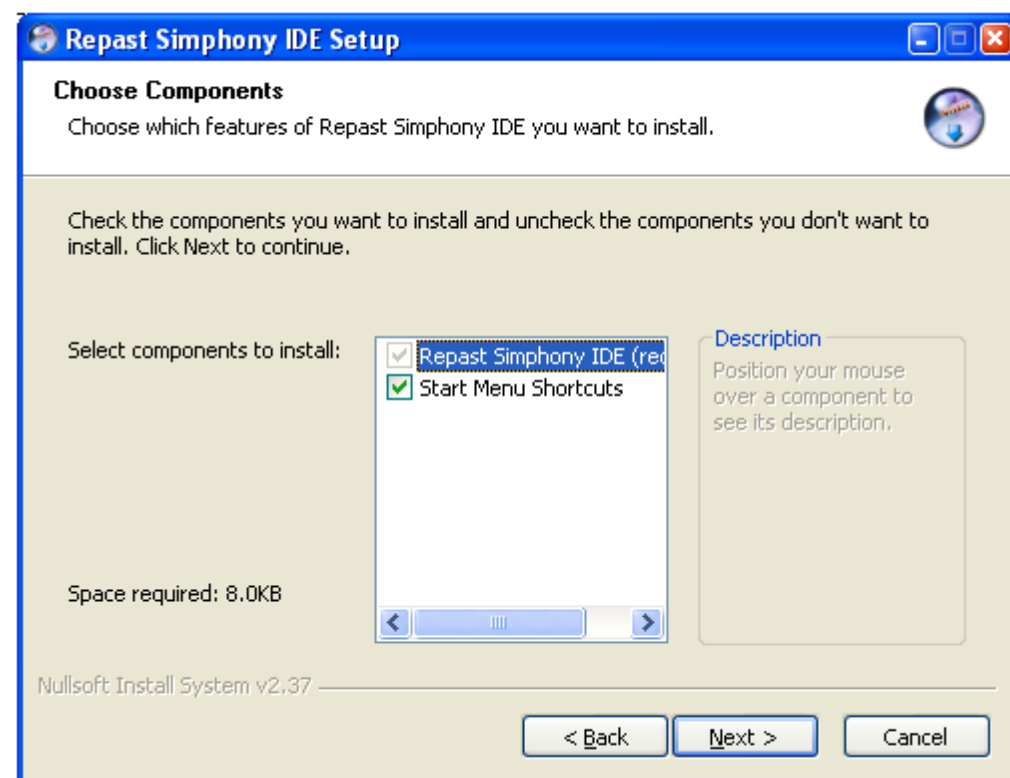
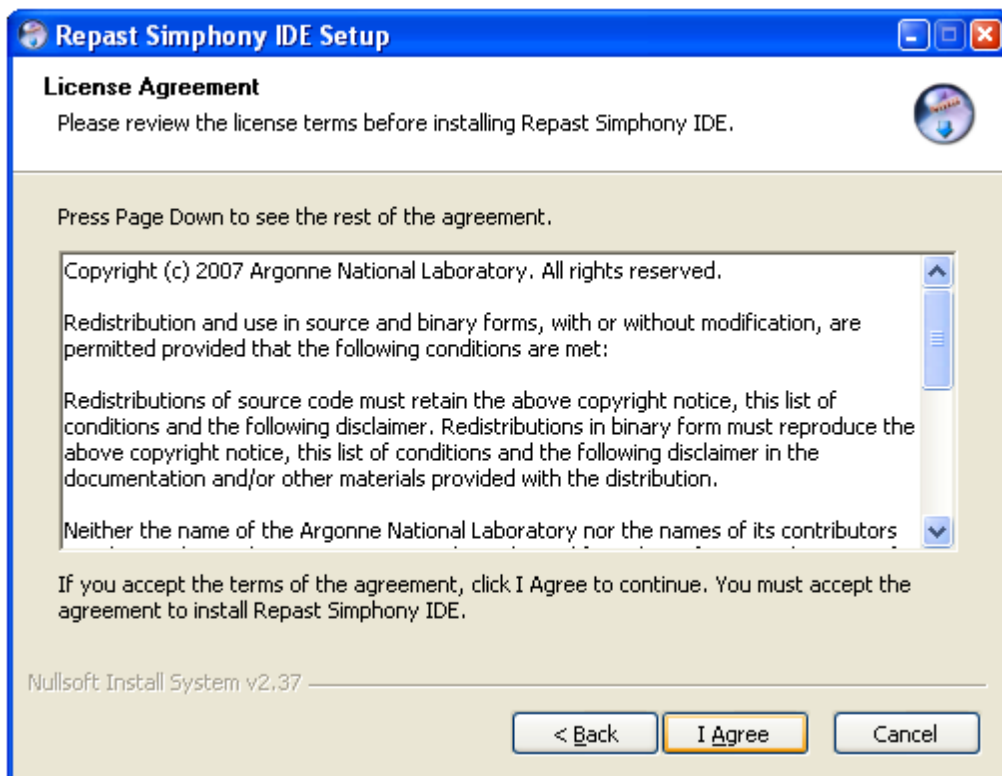
This page last changed on Jul 24, 2008 by etataru.

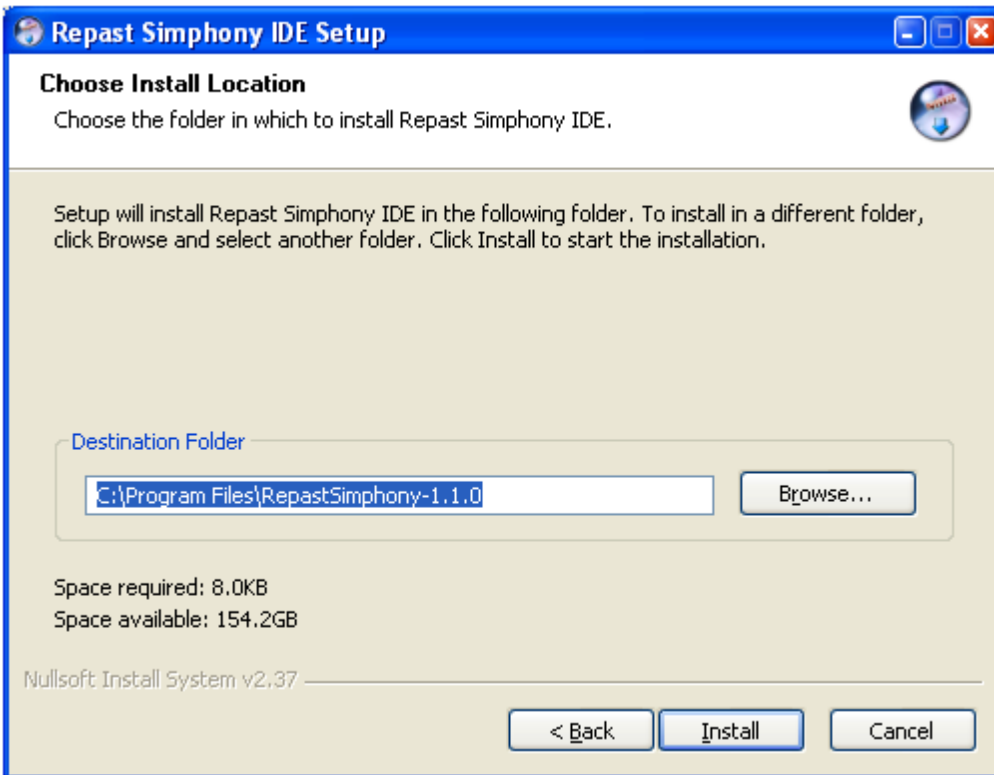
The Repast IDE may be installed using the installers available via sourceforge.net or by setting up Eclipse manually and using the Repast Eclipse update site.

#### Windows Installer

The Windows executable installer will automatically install a complete Repast Symphony IDE. Note that Windows Vista has security permissions that may need to be changed (or you may need administrator privileges) to install Repast. The installer contains all required software components to run Repast.



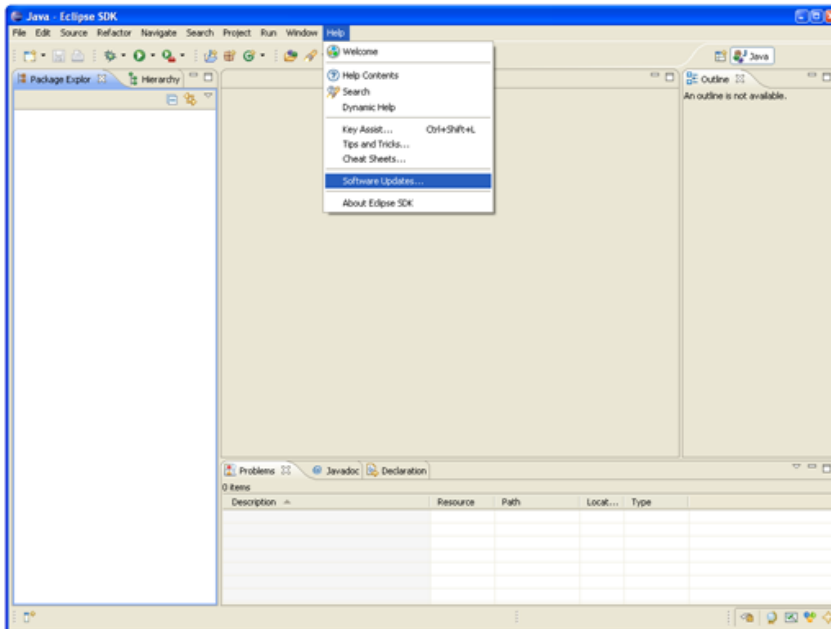




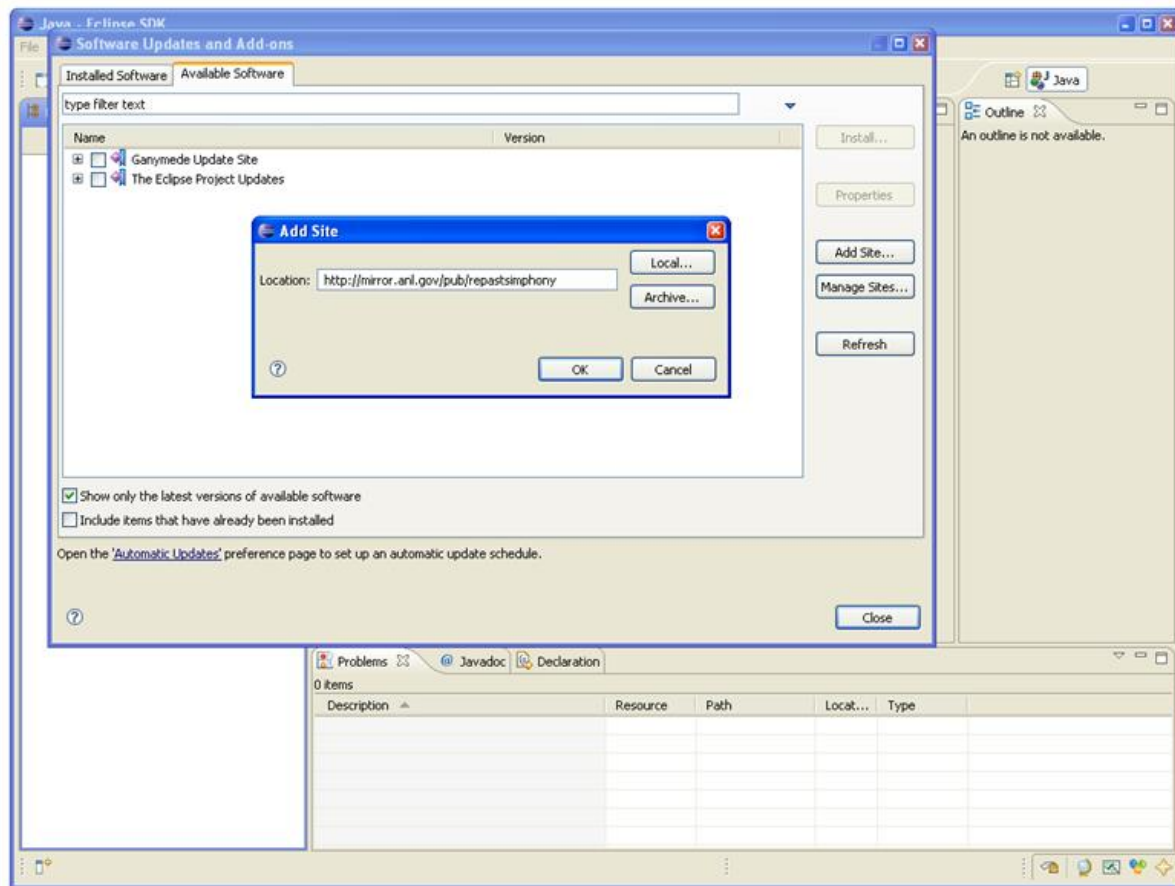
## Repast IDE Eclipse Update Site

The Repast IDE may be installed into an existing Eclipse 3.4 (Ganymede) installation using the Eclipse Software Update utility. This method is required to install Repast Simphony for all systems other than OS/2 and Windows, which may optionally use the update site rather than the installer.

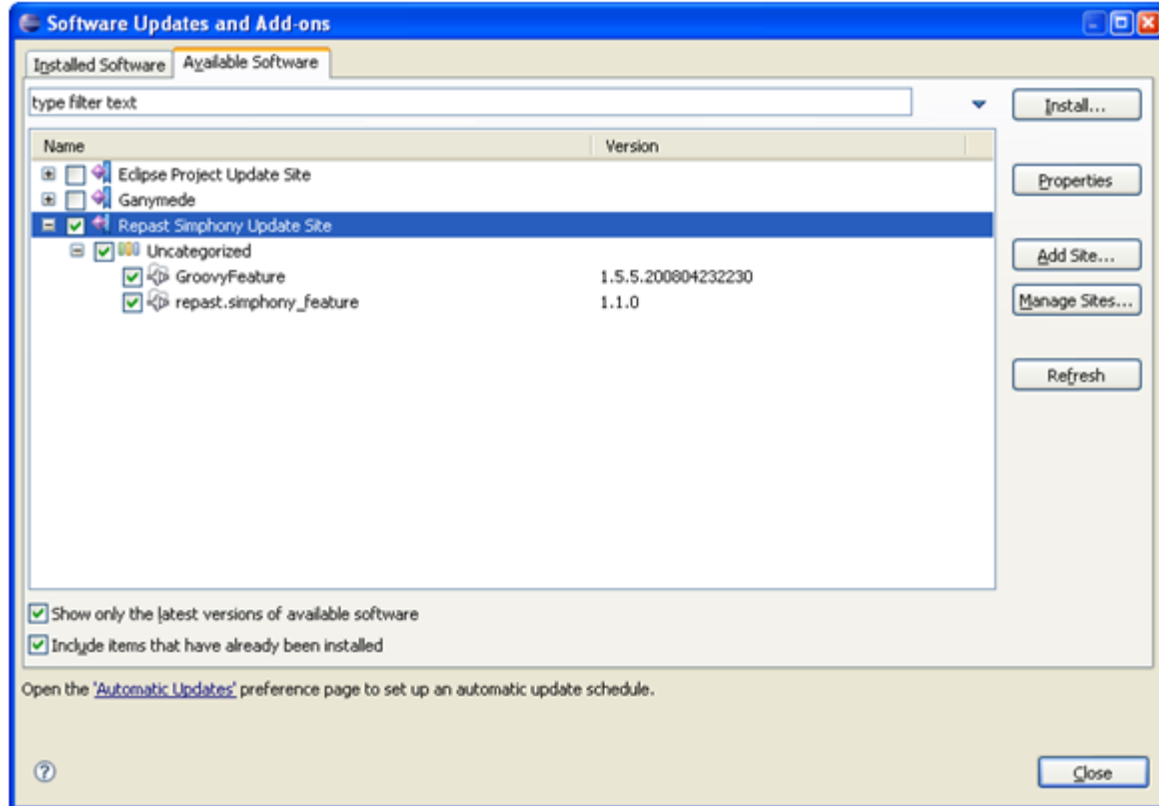
First download and install Eclipse 3.4 Classic (<http://www.eclipse.org/downloads/>). Under Help -> Software Updates...



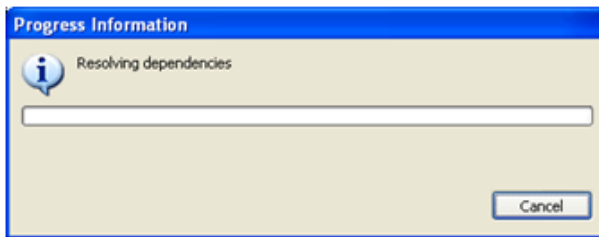
Select "Add Site..." and enter <http://mirror.anl.gov/pub/repastsimphony>



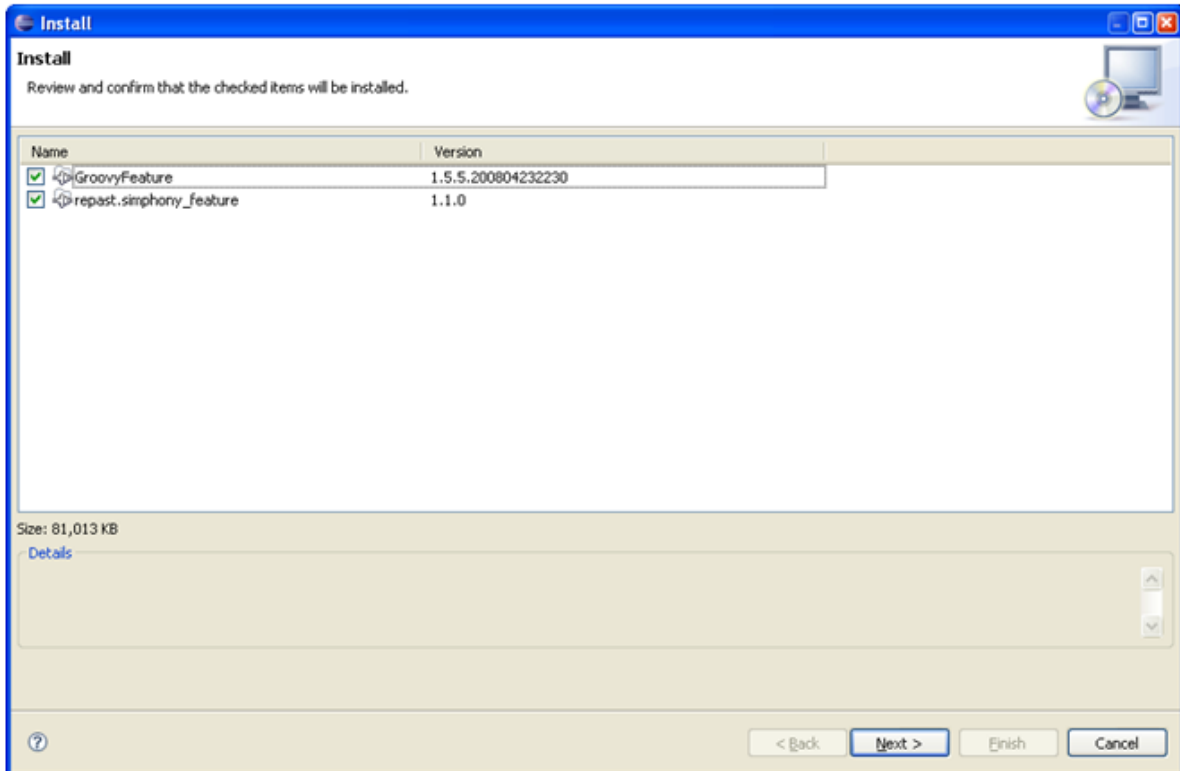
Select the check box so that all elements are selected as shown and click "Install..."



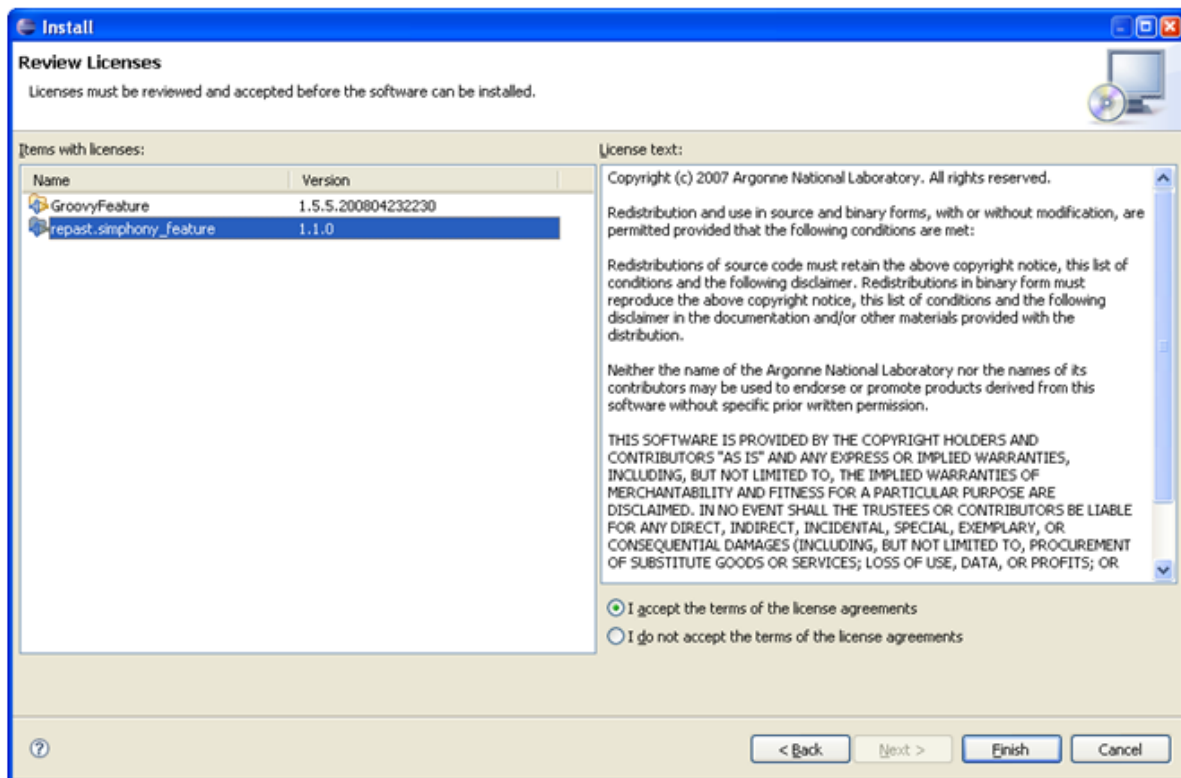
The installer will check for project dependencies which may take a few minutes.



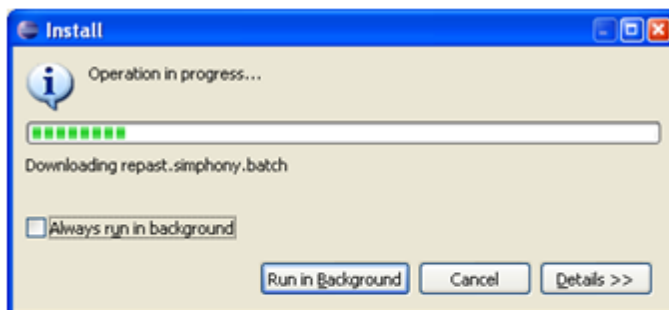
The installer presents a list of available features. Click Next.



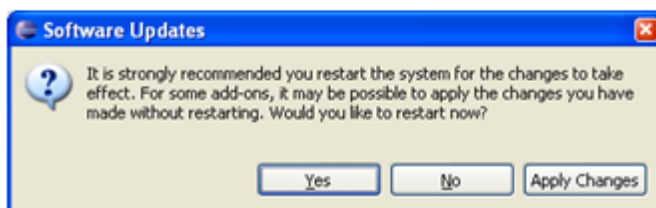
Click the radio button to accept the license agreement and click Next.



The download may take several minutes depending on the network connection speed.

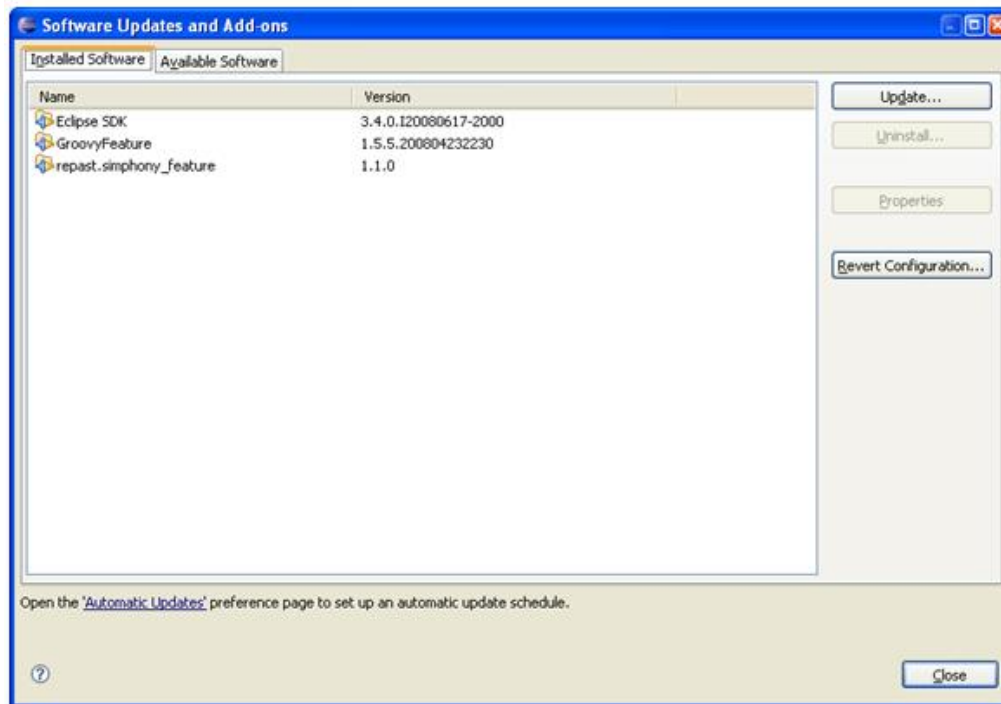


It is necessary to restart Eclipse after the installation.



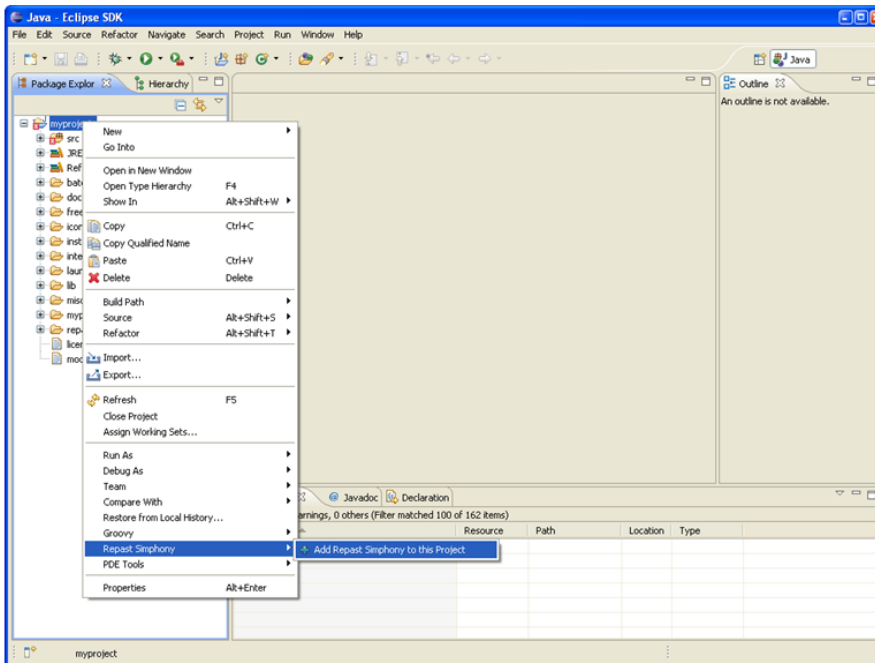


After Eclipse restarts, you may verify that the Repast IDE is installed correctly by selecting Help -> Software Updates... and see that the repast.simphony\_feature is listed.

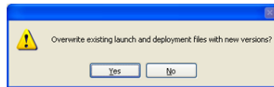


#### Updating Projects Created with Previous Versions of Repast Simphony.

Projects created with previous versions of Repast Simphony may be automatically updated to the current version. Import an existing project into the workspace, then right click on the project and select Repast Simphony -> Add Repast Simphony to this Project.

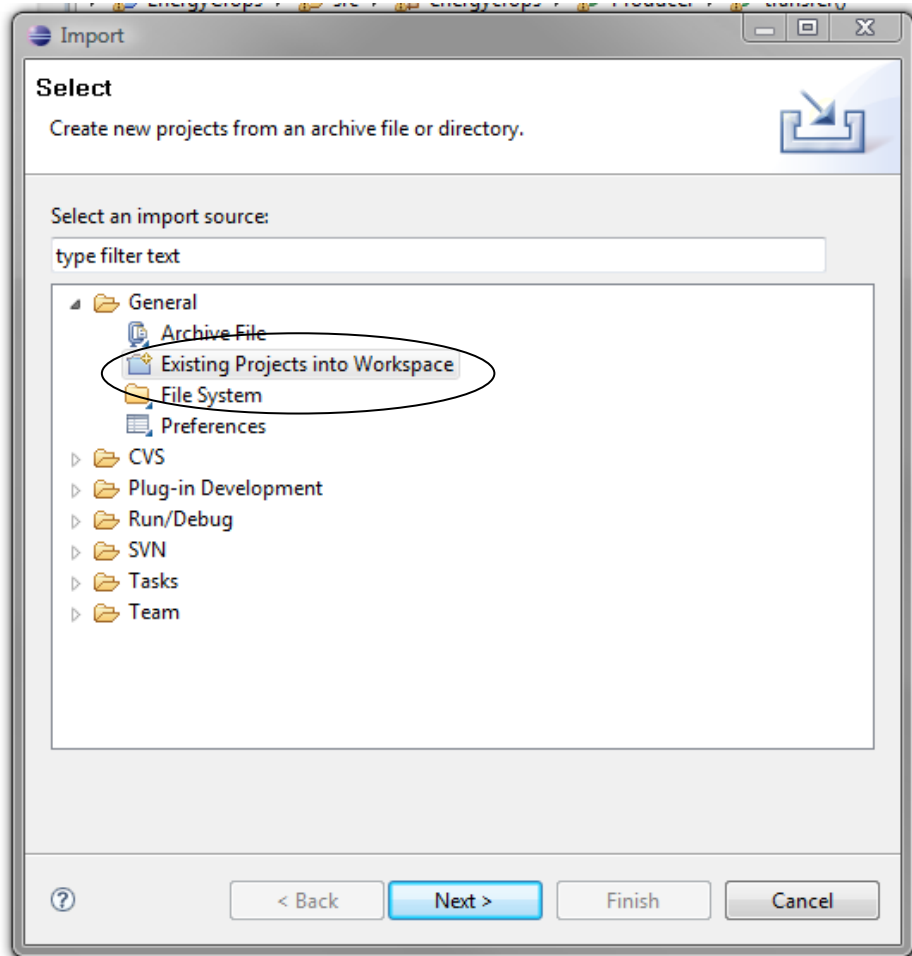


A dialog will appear asking for permission to overwrite existing launch scripts for your model. The launch scripts need to be updated to reflect some changes in the new version of Repast. Unless you have manually changed the launch scripts, it is recommended that you select "Yes" so that the launch scripts may be updated.

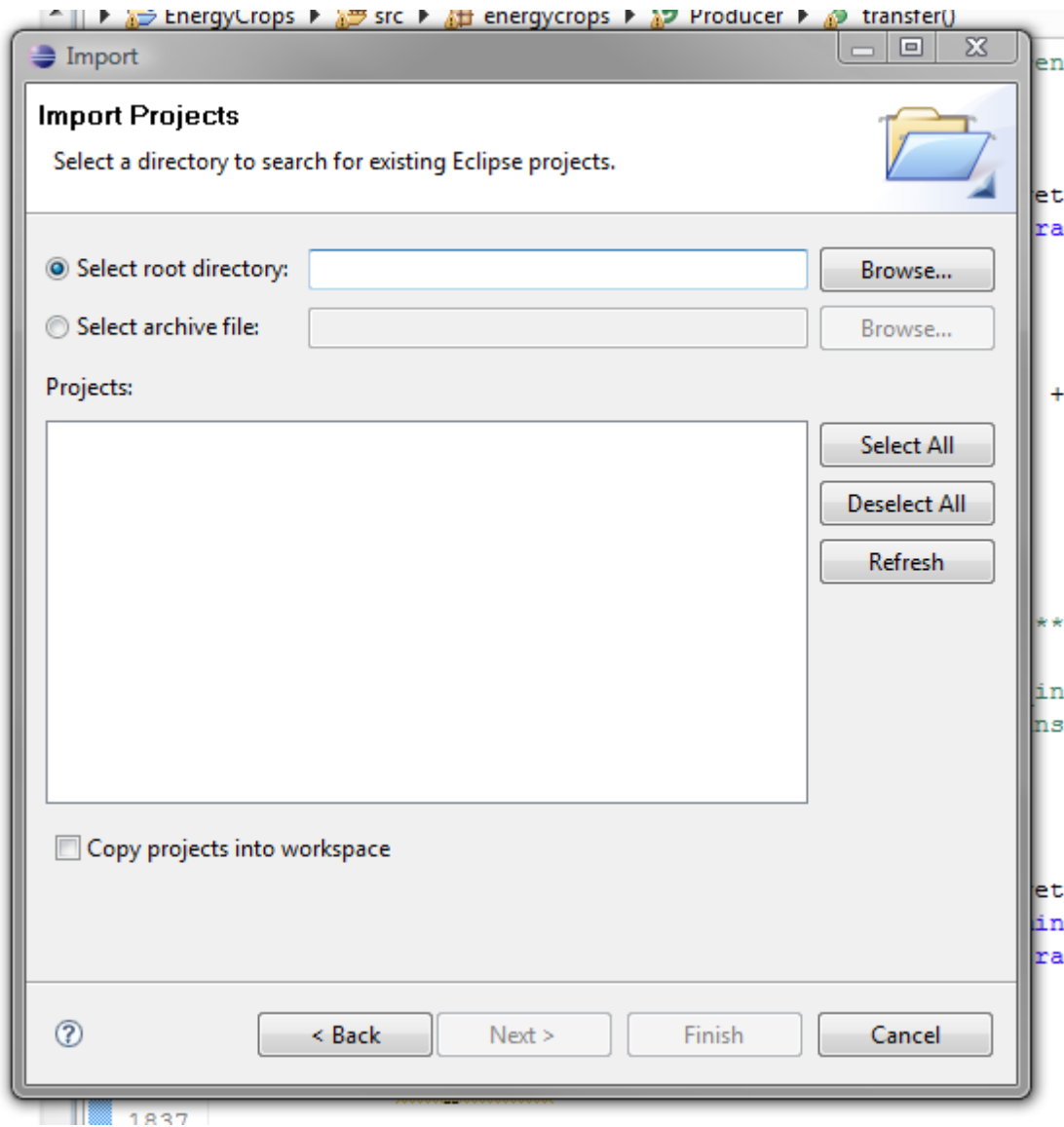


## Importing ABM projects:

Go to "File" in Repast Symphony – Click on "Import" Click Next.




Locate the project “Energy Crops” you want to import into your workspace directory. Then Click finish.




#### 4) Instructions for installing lp\_solve

Go to <http://sourceforge.net/projects/lpsolve/>;

5) Click view all files as shown below:

 **lpsolve** by keikland, peno64

Summary | Files | Support | Develop



Mixed Integer Linear Programming (MILP) solver `lp_solve` solves pure linear, (mixed) integer/binary, semi-cont and special ordered sets (SOS) models. `lp_solve` is written in ANSI C and can be compiled on many different platforms like Linux and WINDOWS

[View screenshots](#)

**Download Now!**  
`lp_solve_5.5.2.0_IDE_Setu...` (2.1 MB)







[View all files](#)

<http://lpsolve.sourceforge.net>




[Show project details](#)

6) The `lp_solver` version used in Energy Crops ABSM is 5.5.0.15

- Click on the 5.5.0.15 folder as shown below:





▶ 5.5.2.0	21.1 MB	2010-08-22	3,482		
▶ 5.5.0.15	22.2 MB	2010-02-08	29,779		
▶ 5.5.0.14	16.2 MB	2009-05-02	23,656		

7) Click the: `lp_solve_5.5.0.15_java.zip` file and save it on your computer.

 <code>lp_solve_5.5.0.15_Python2.6_exe_ux32.tar.gz</code>	113.5 KB	2010-01-31	193
 <code>lp_solve_5.5.0.15_java.zip</code>	471.1 KB	2009-11-21	1,706
 <code>lp_solve_5.5.0.15_AMPL_exe_osx32.tar.gz</code>	51.6 KB	2009-10-25	327

**8) Two other files are required the exe\_win\_32 and dev\_win\_32 Depending on your operating system:**

- Click on 32 or 64 bit for windows as follows:

 <a href="#">lp_solve_5.5.0.15_exe_win32.zip</a>	650.8 KB	2009- 09-17	1,547
 <a href="#">lp_solve_5.5.0.15_exe_win64.zip</a>	891.2 KB	2009- 09-17	439
 <a href="#">lp_solve_5.5.0.15_dev_win32.zip</a>	1.0 MB	2009- 09-17	4,414
 <a href="#">lp_solve_5.5.0.15_dev_win64.zip</a>	1.3 MB	2009- 09-17	611

**9) Follow these instructions but save them in a folder called “lp\_solve55j” in your “workspace” folder where your Repast project will be located:**

## 2. Installation

- Copy the lp\_solve dynamic libraries from the archives `lp_solve_5.5_dev_(zip or tar.gz)` and `lp_solve_5.5_exe_(zip or tar.gz)` to a standard library directory for your target platform. On Windows, a typical place would be `WINDOWS\SYSTEM32`. On Linux, a typical place would be the directory `/usr/local/lib`.
- Unzip the Java wrapper distribution file to new directory of your choice.
- On Windows, copy the wrapper stub library `lp_solve55j.dll` to the directory that already contains `lp_solve55.dll`.
- On Linux, copy the wrapper stub library `liblp_solve55j.so` to the directory that already contains `liblp_solve55.so`. Run `ldconfig` to include the library in the shared library cache.

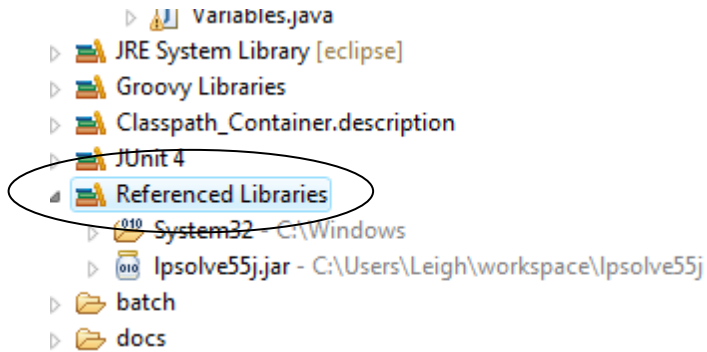
## 3. Usage

To create a Java application that uses lp\_solve routines, you must perform the following steps:

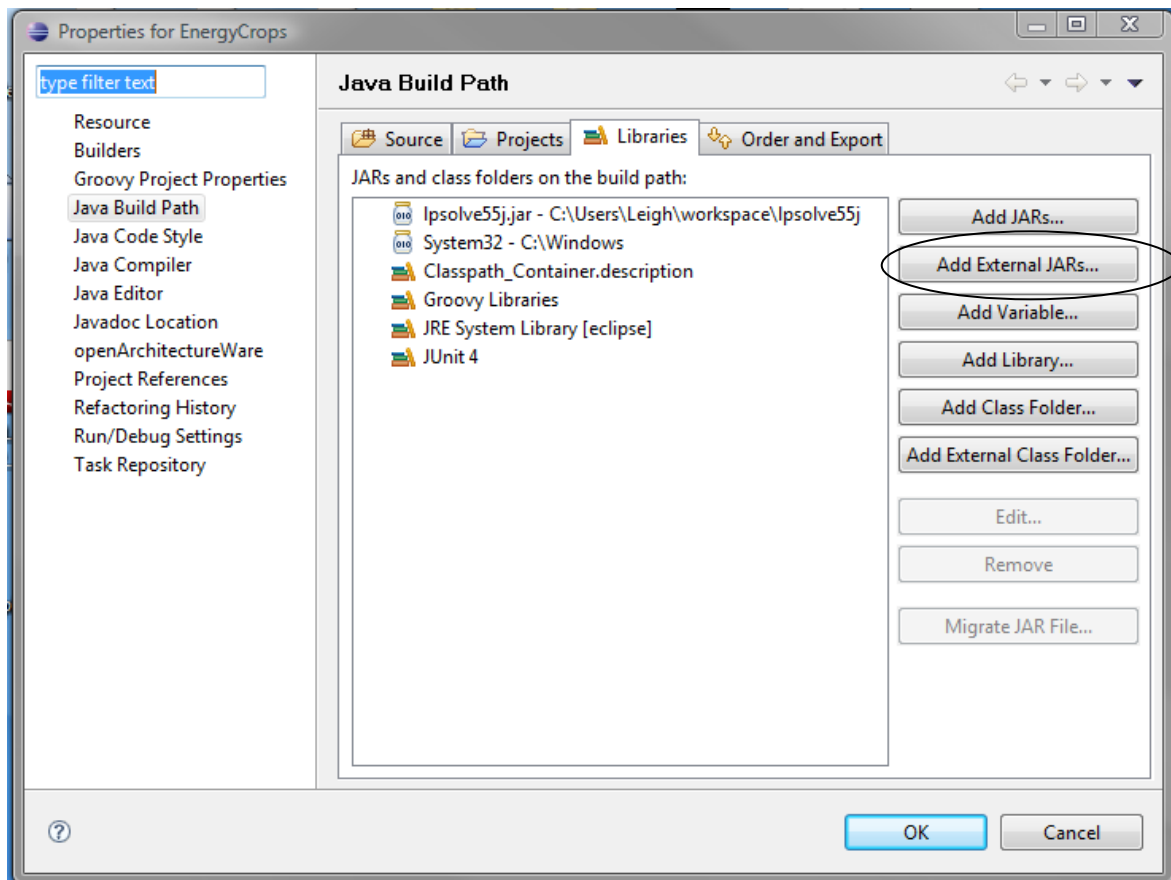
- Make sure you have a Java Runtime Environment 1.3 or later installed.
- Install lp\_solve and the Java wrapper as described above.
- Copy the archive file `lp_solve55j.jar` from the Java wrapper distribution to a directory that is included in the CLASSPATH of your java program.
- Add an import statement for the package `lp_solve.*` at the beginning of your source file.
- Call `lp_solve.makeIp(...)` or one of the other static factory methods of the `LpSolve` class to create a `lp_solve` instance. Each `lp_solve` instance represents an optimization problem.
- Call the methods of the `lp_solve` instance to define the problem and obtain the solution. Use the examples and implementation notes later in this documentation for further information.
- When you run your Java file make sure to include `lp_solve55j.jar` in the CLASSPATH. Also, on Windows, if you installed the native stub library in a directory that is not included in the PATH variable, you have to define the Java system variable `java.library.path` which must point to the installation directory. On Linux, the equivalent of the Windows PATH variable is called `LD_LIBRARY_PATH`.

10) Start Repast. In Repast add Ip\_solver to “Referenced Libraries” within Repast Symphony

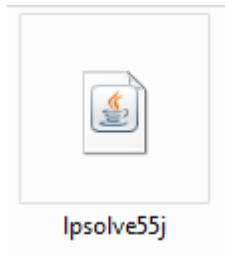
Right Click on the “Referenced Library” then “Build path” then “Configure Build Path”



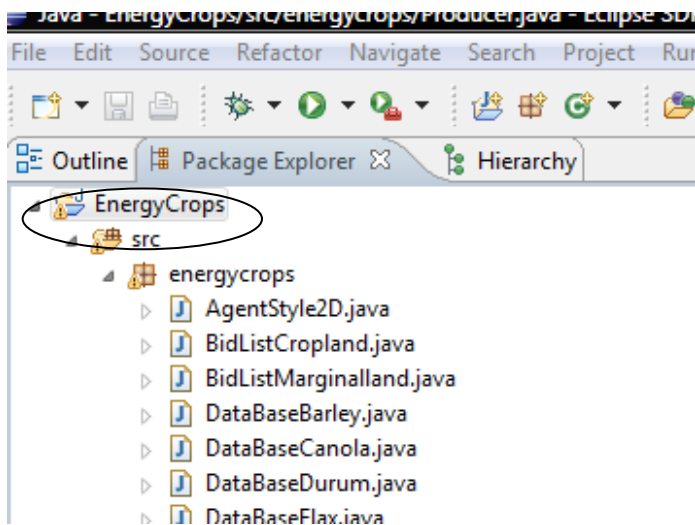
Your Screen should look like this: then click on “Add External JARs...”



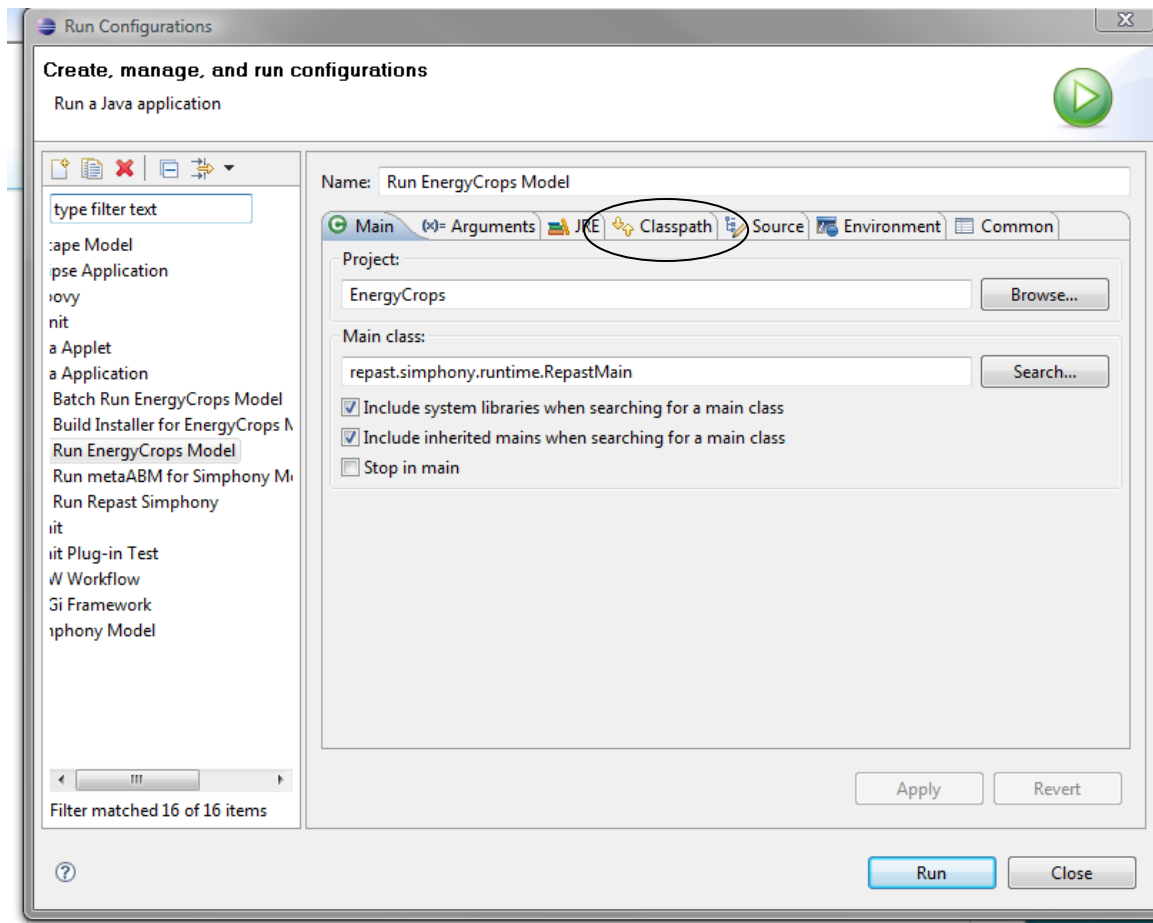
Locate the `lpsolver55j.jar` file in the `workspace\lpsolver55j` folder (should look like this). Select it and then OK.



Next add `lp_solver` to the runtime configurations. First Right Click on Energy Crops folder – then “Run As” Then “Run Configurations”

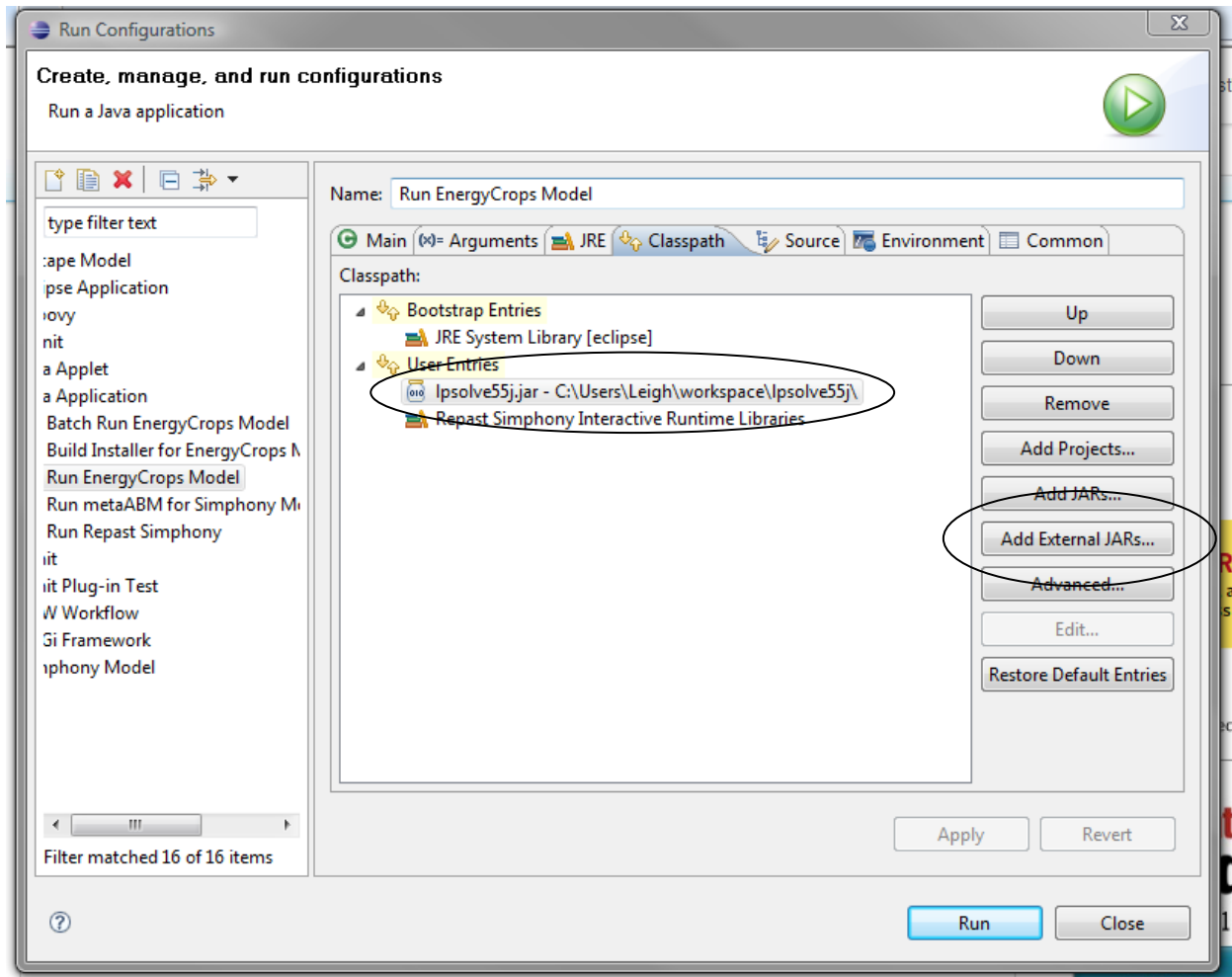


Run Configurations will bring you to this screen, click on the “Classpath” tab:

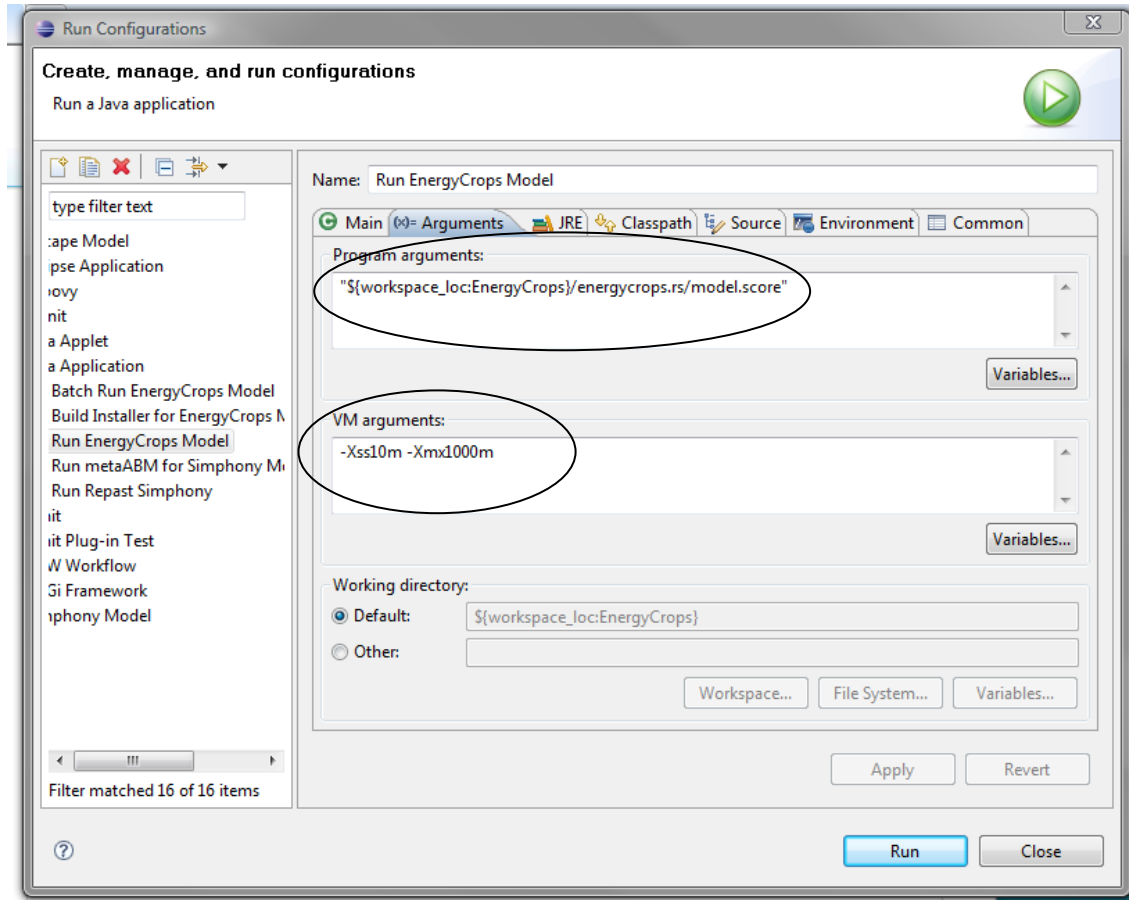




Add “External JAR’s...” as you did in Referenced Library. This should look like this when finished. (Don’t be surprised if each time you run the model you have to redo this step, this happens on occasion, not sure why).



While we are in the “Run Configurations” go to the “Arguments Tab” the program argument needs to be set so the model runs correctly this is important so parameter values can be accessed from the model.score file. As well as the VM arguments this sets the java memory. If you get java out of memory this is where we increase it depending on your computer. Here I have set it at 1000m.



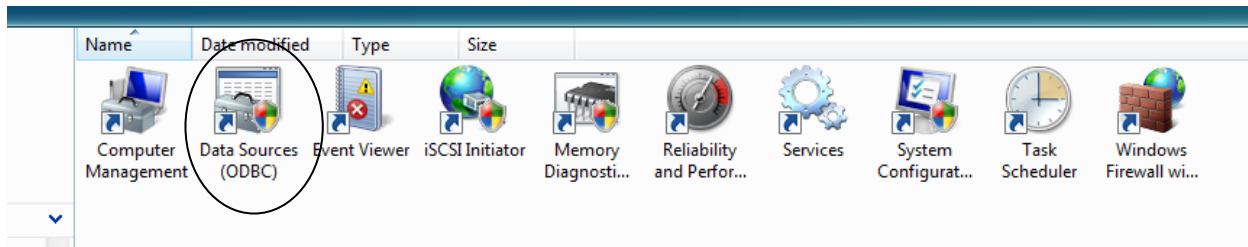
The model is not quite ready to run yet. We still need to set the Access Data Base Correctly.

## Setting the Access Data Source in Windows Vista

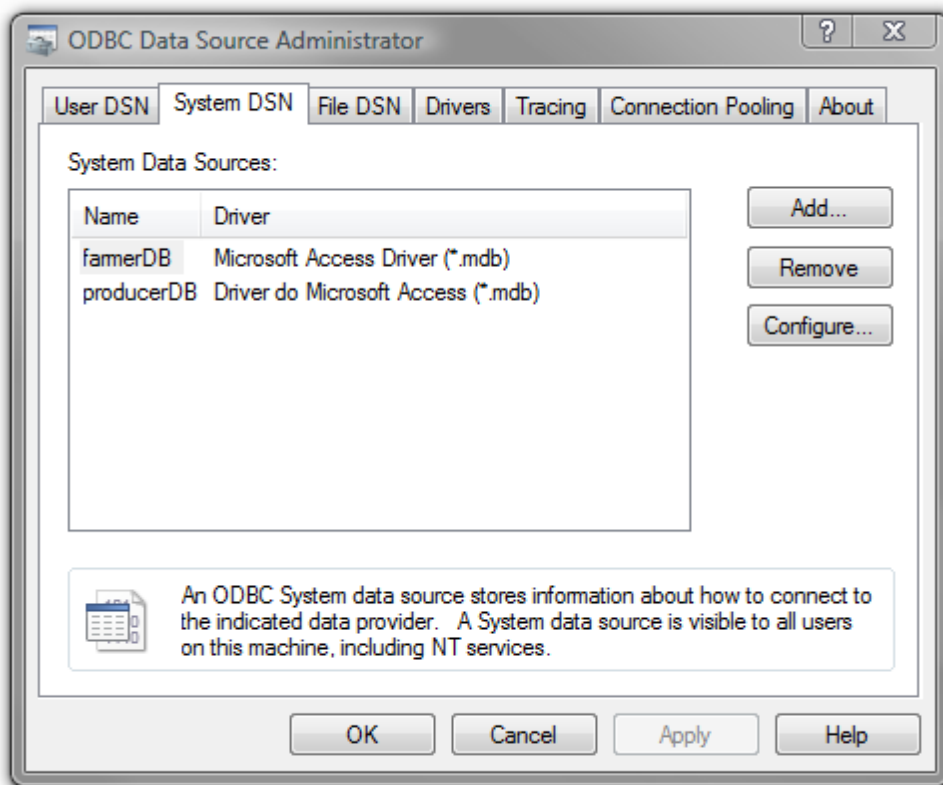
### Step 1: Click on Administrative Tool in the Control Panel



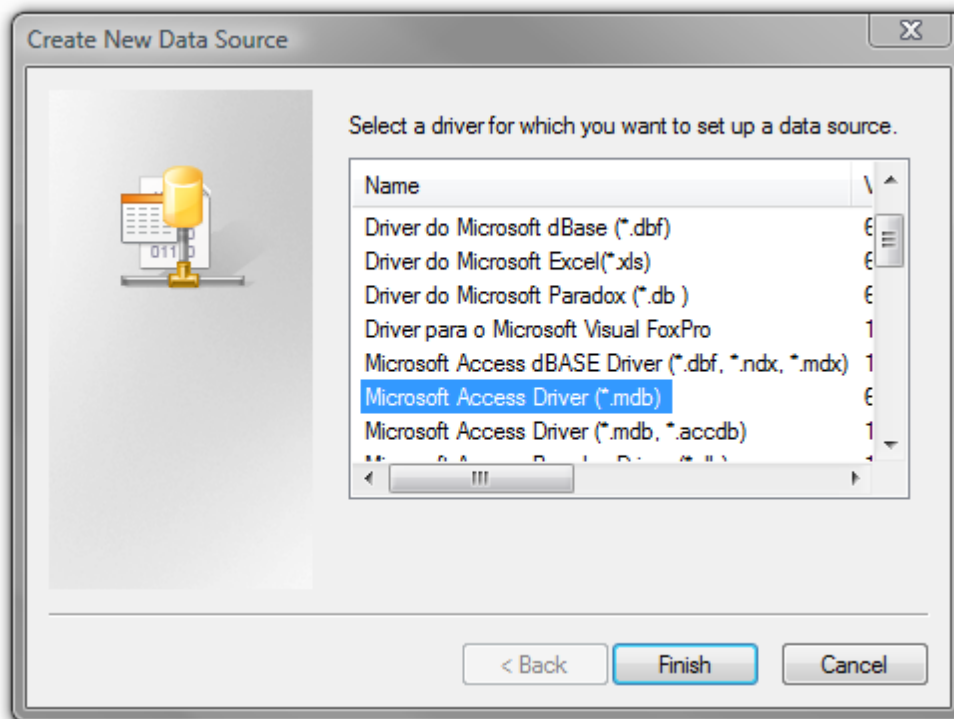
## Step 2: Click on Data Sources (ODBC)



## Step 3: Go to System DSN

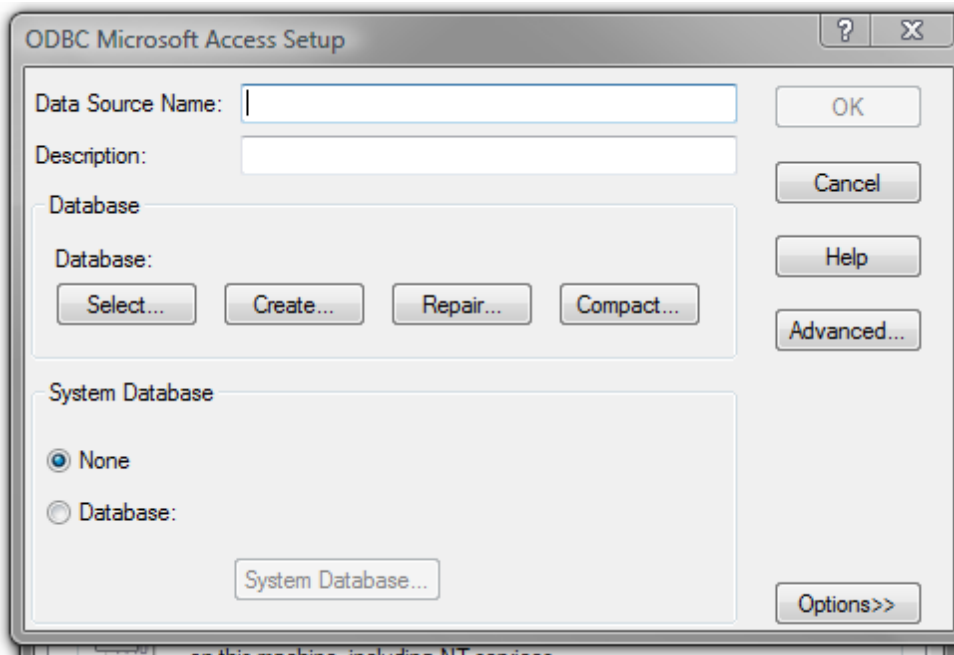


**Step 4: Click on Add, then select the appropriate driver to set up a data source. Here you should select “Microsoft Access Driver (\*.mdb)”**

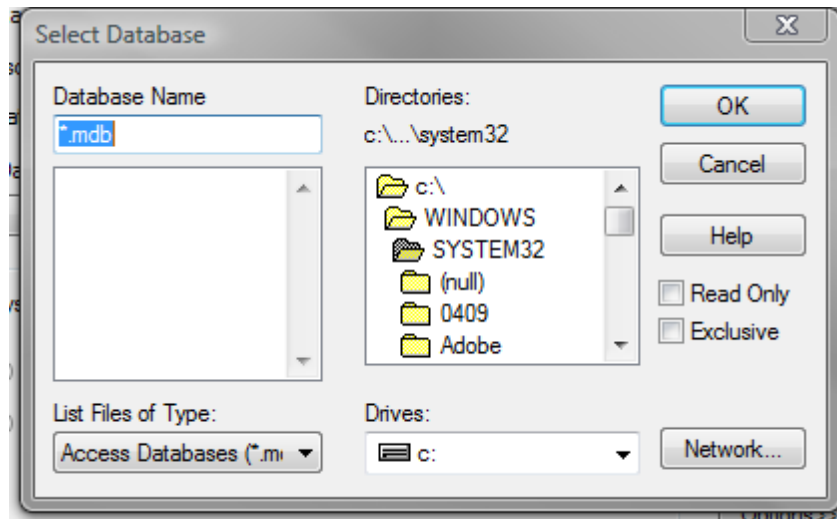


**Step 5: Click Finish**

**Step 6: Type in Data Source Name “producerDB” and Description “producerDB”**



**Step 7:** Click Select Button, and find where the database is located on your machine, then click OK button, you will return to 'ODBC Microsoft Access Setup' dialog box, If you want to setup user name and password for the database, you can click Advanced button, then dialog box, Set Advanced Options, will pop up. Then you can input login name and password. For example, login name is java, and password is 1234.



**The Model should be ready to run. Hopefully I didn't miss any steps.**