Pascal Flavor for Structure 101g

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2013/07/03

1) What is the Pascal Flavor for Structure101g?

This is a sort of a plugin for Structure 101g (called a flavor). It allows you to analyze Pascal and Delphi programs using Structure 101g.

2) Why Two Flavors, and Not Just One?

If you want to have a macro view of a system, taking into consideration only the "uses" clauses (dependencies) among modules, you should use the

com.sglebs.pascal.modelmaker flavor. If, on the other hand, you want to see details of the various dependencies between program entities (e.g. Variable X in unit Y is of type Foo, in unit Bar, etc) then you want to use the *com.sglebs.pascal.understand* flavor.

Note, however, that both plugins depend on external tools which you must run on your codebase first:

- *com.sglebs.pascal.modelmaker:* Depends on the free ModelMaker tool: http://www.modelmakertools.com/articles/lattix-dsm.html (the free download is at the bottom of the page)
- *com.sglebs.pascal.understand* : Depends on the SciTools Understand product: http://www.scitools.com/

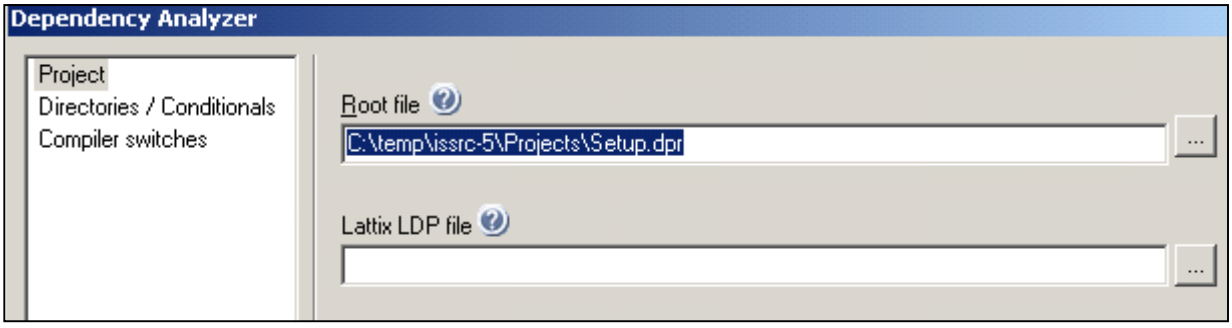
3) Using com.sglebs.pascal.modelmaker

We will detail the steps involved in analyzing a sample Delphi project: the InnoSetup sources. Make sure you download the sources and unzip them somewhere (we used C:\temp\issrc-5).

First you should download and then unzip ModelMaker to a location, such as C:\tools\delphi. You should run UnitDependencies.exe.

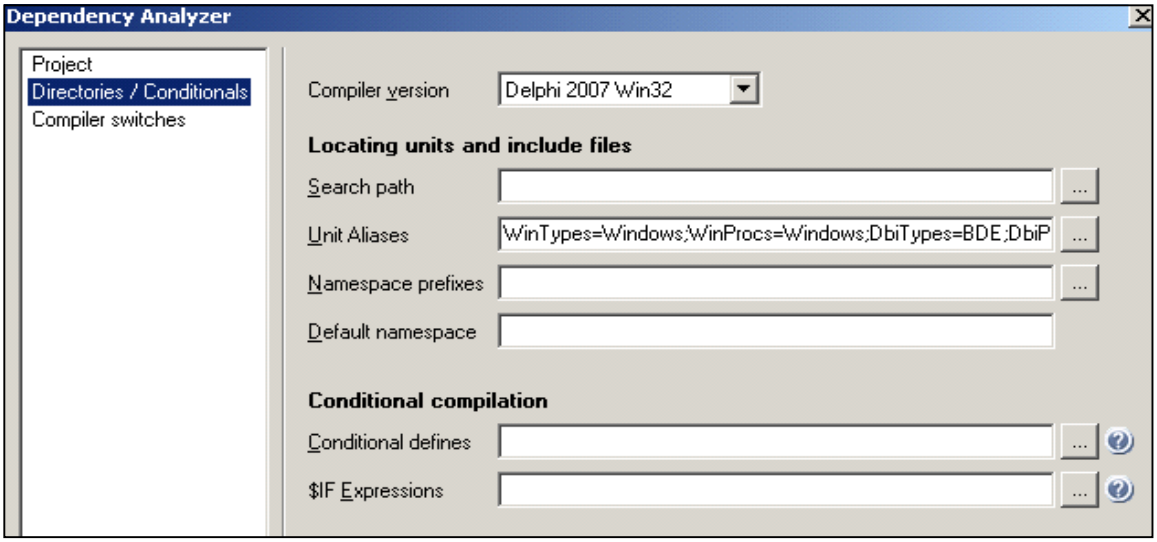
3.1) Choose a Project (DPR) file to Analyze

Here we point at C:\temp\issrc-5\Projects\Setup.dpr like the screenshot below shows:

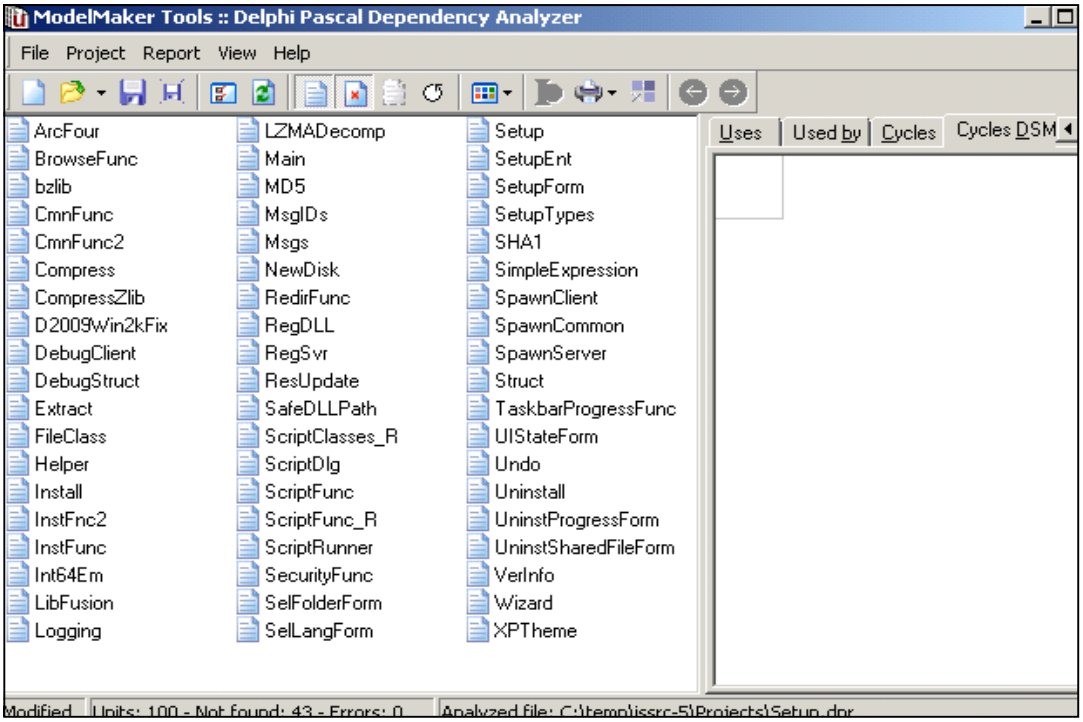


3.2) Configure the Parameters as needed & Load

Make sure to tweak the "Directories / Conditionals" and the "Compiler Switches" options in the dialog in the previous section, according to your project needs. Pay special attention to Search Path:



Click OK in the main Dialog and you should get a window like this:

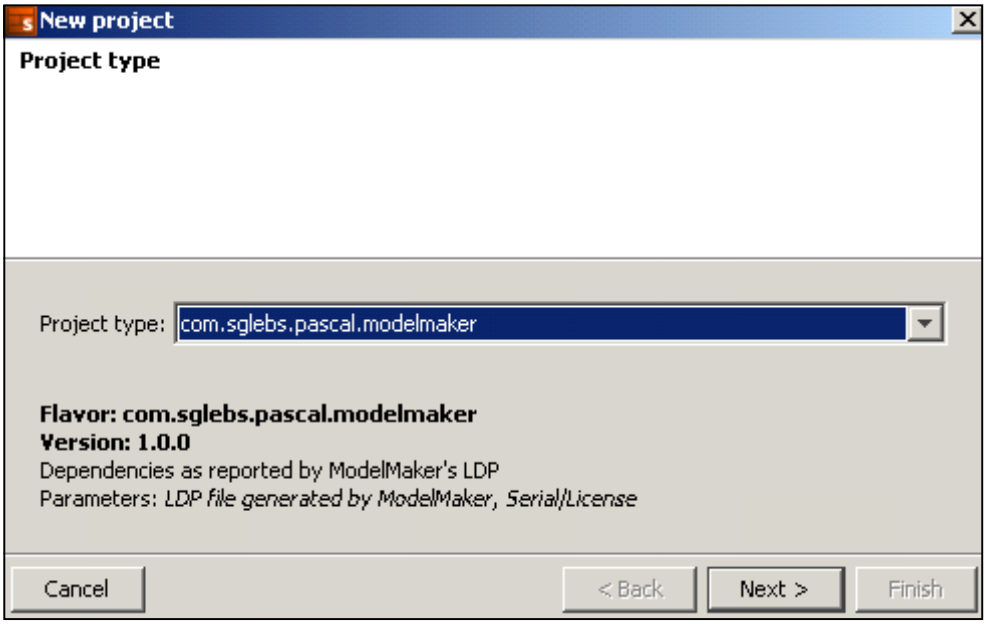


3.3) Export the LDP File

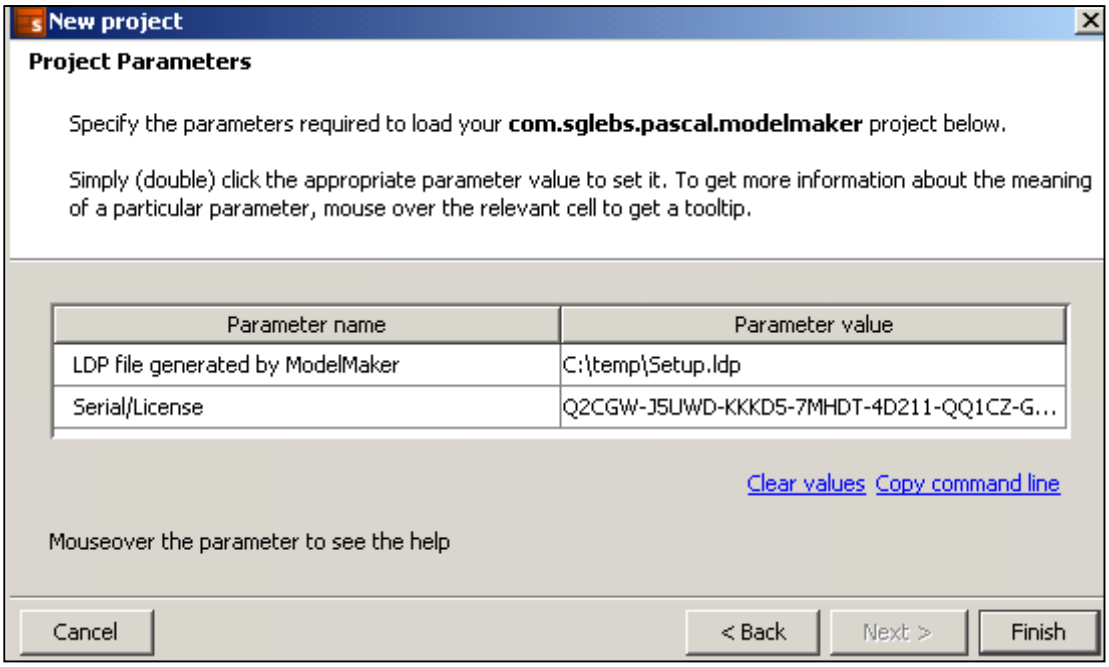
Go to the Project->Lattix LDP Export, and save the file. We chose c:\temp\Setup.ldp

3.4) Load the LDP into the Plugin

Load Structure 101g and choose File->New, then select our plugin:

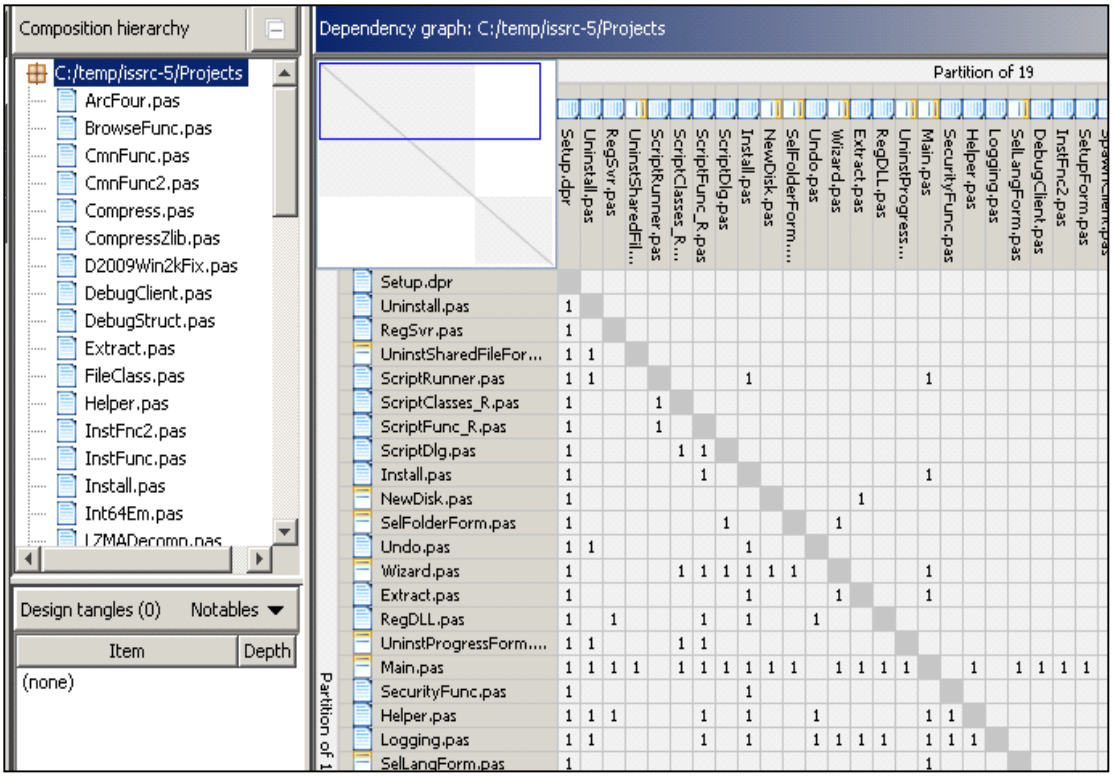


Click Next and make sure to point at the LDP file you created (c:\temp\Setup.ldp in our case):



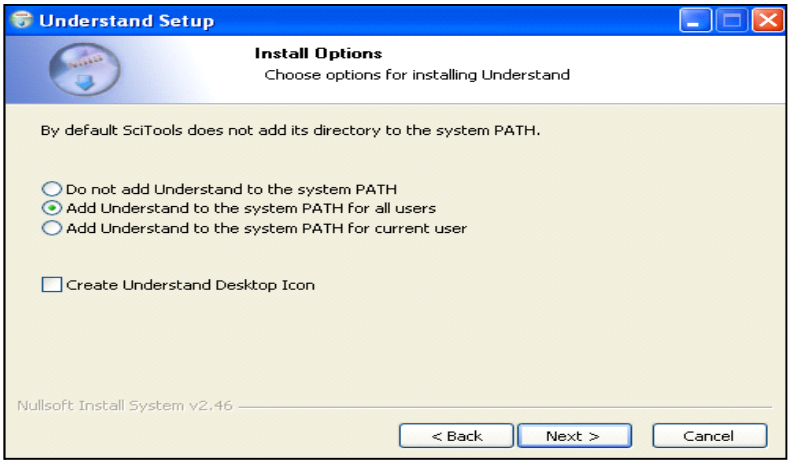
3.5) Ready to Run

Now you are ready to click the Finish button and see the results:



4) Using com.sglebs.pascal.understand

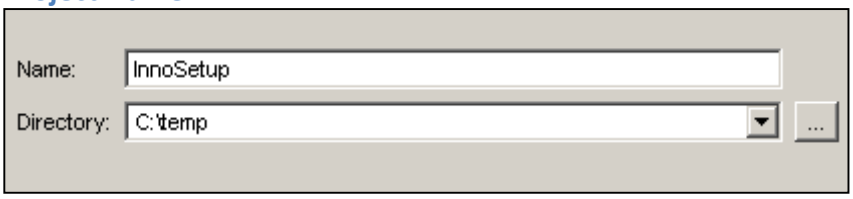
In order to run this plugin, you will need a valid Understand license from http://www.scitools.com/ . Make sure to add Understand's bin directory to the PATH, so that its DLLs – required by our flavor – can be loaded at runtime. This is how to do it, when you install Understand:



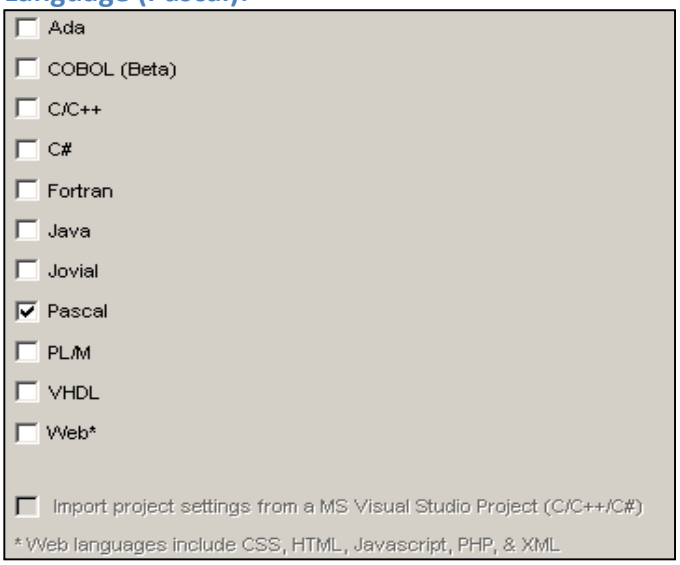
4.1) Create the Understand Project

After launching Understand, use File->New->Project, and fill in the fields as shown below:

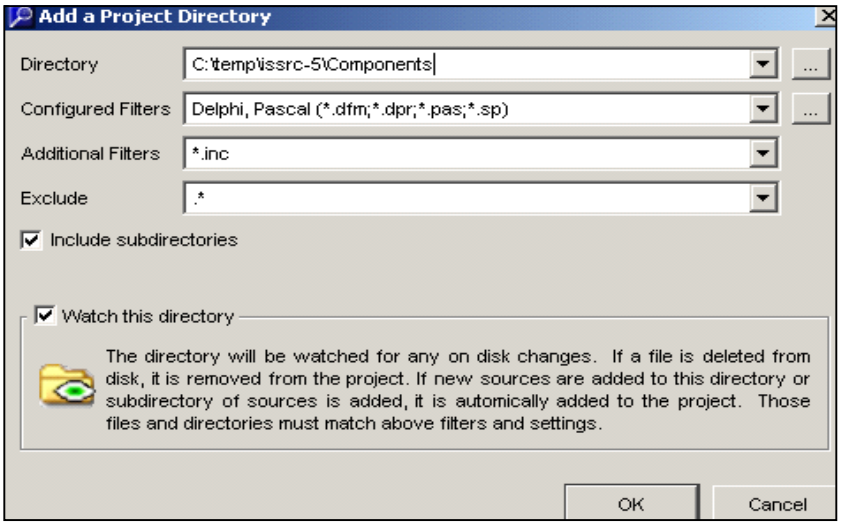
Project Name:

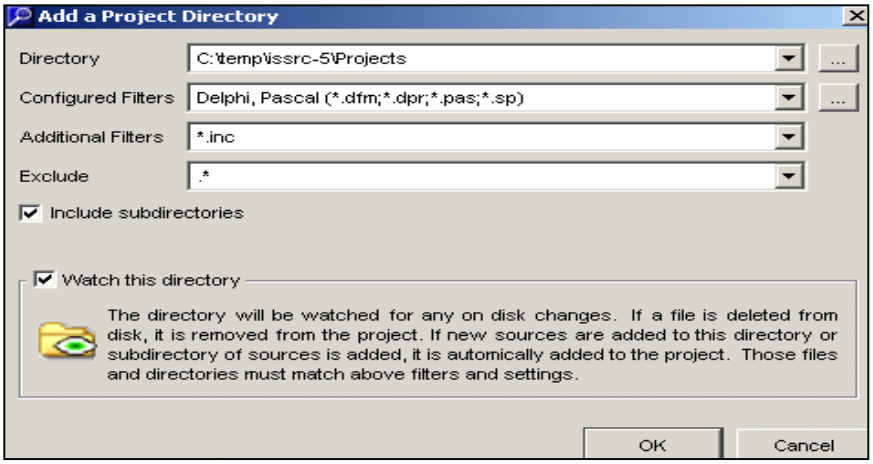


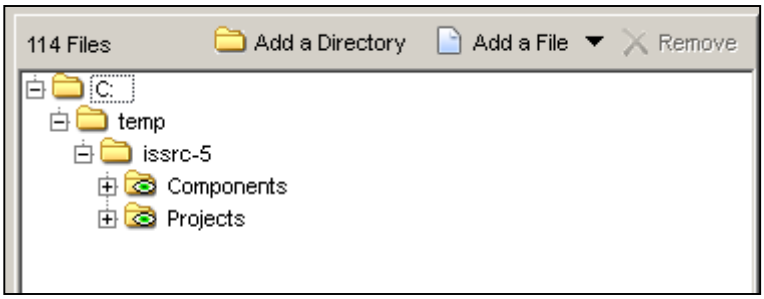
Language (Pascal):



Add The Source Directories:

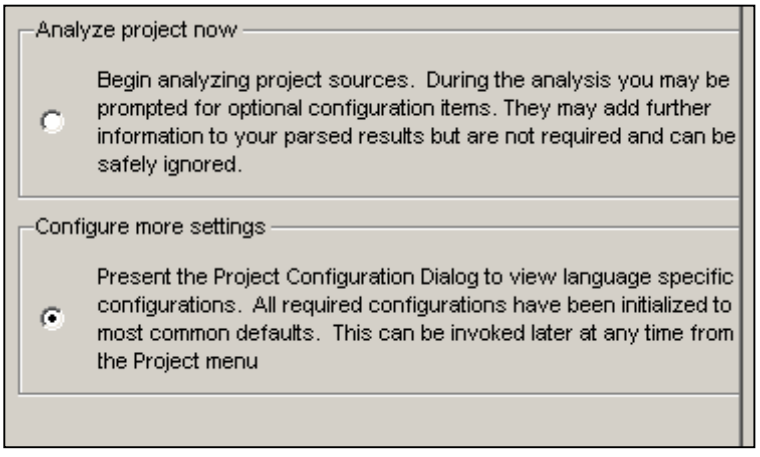






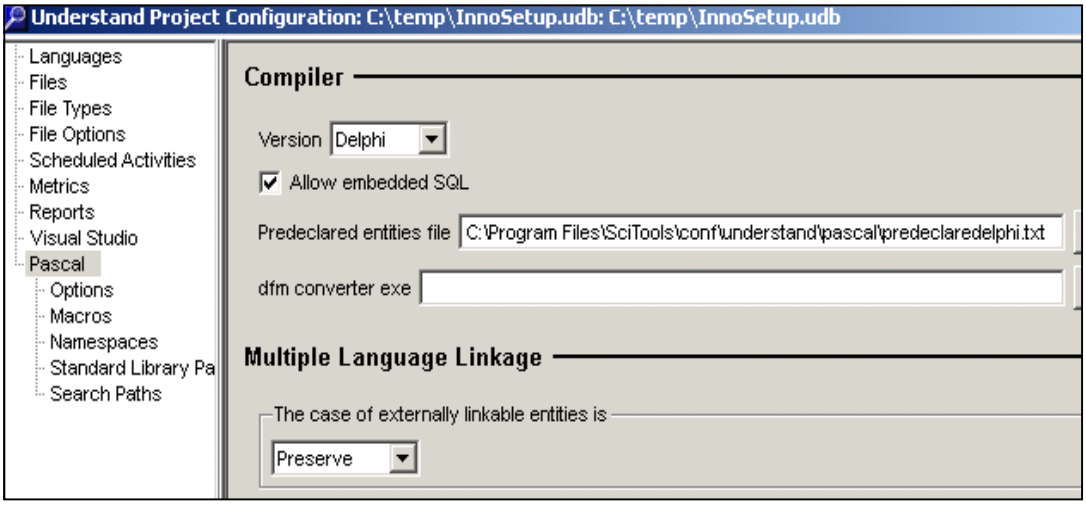
4.2) Configure More Settings

Make sure to select this non-default radio button at the end of the wizard:

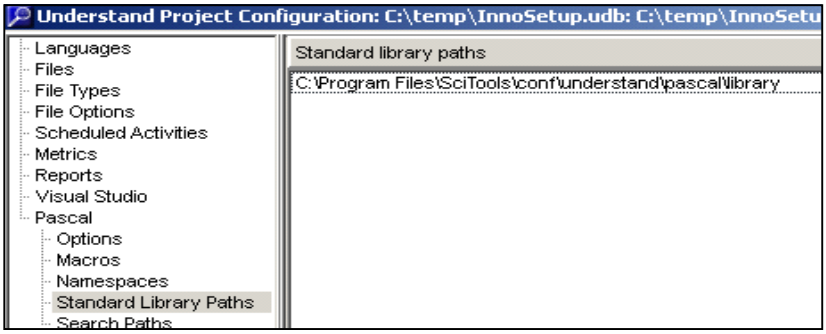


This will allow us to configure some more options.

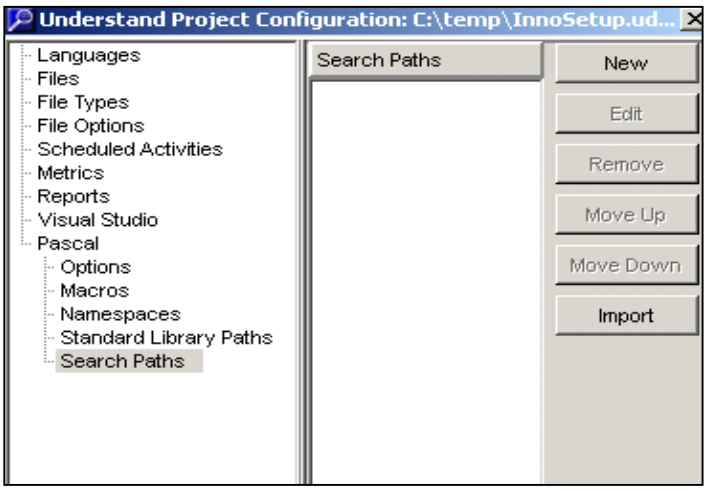
Predeclared Entities File:



Standard Library Path:

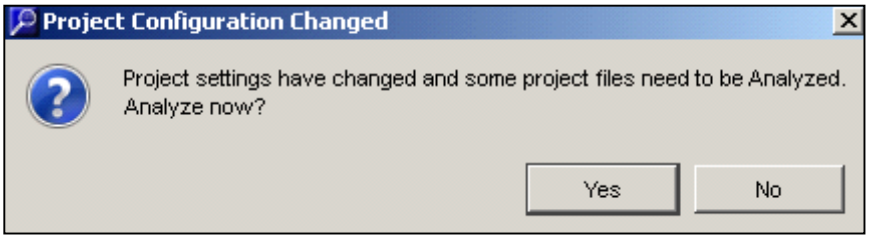


Search Path (if relevant):

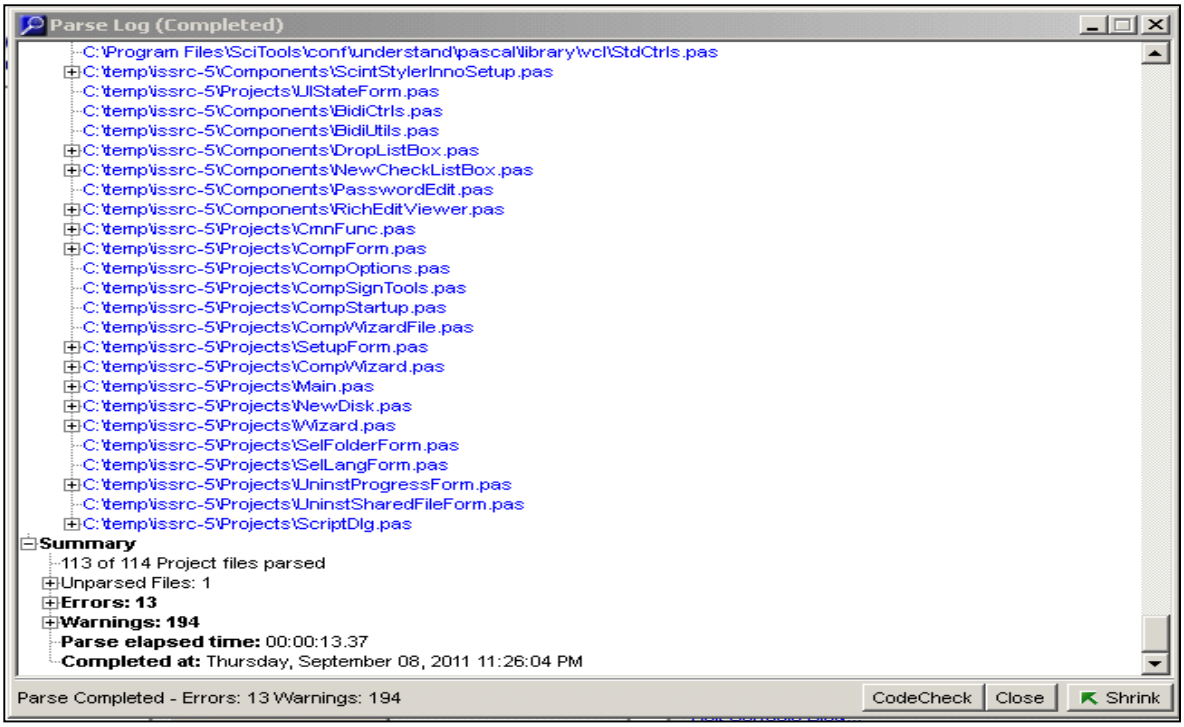


4.3) Let Understand Analyze

Now you can click OK and confirm when Understand asks to Analyze your files:



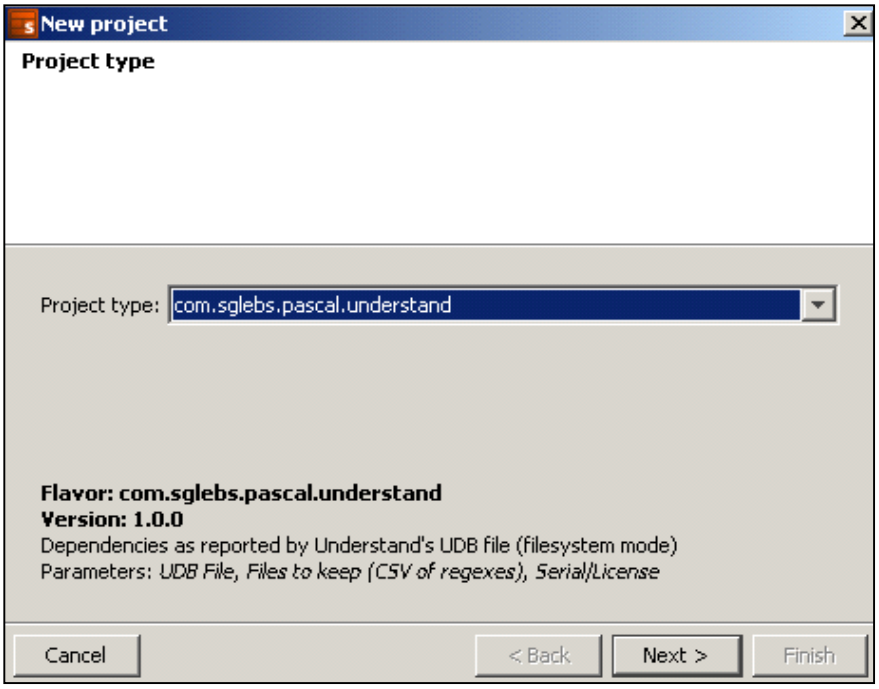
You should get a dialog showing progress, until it finishes:



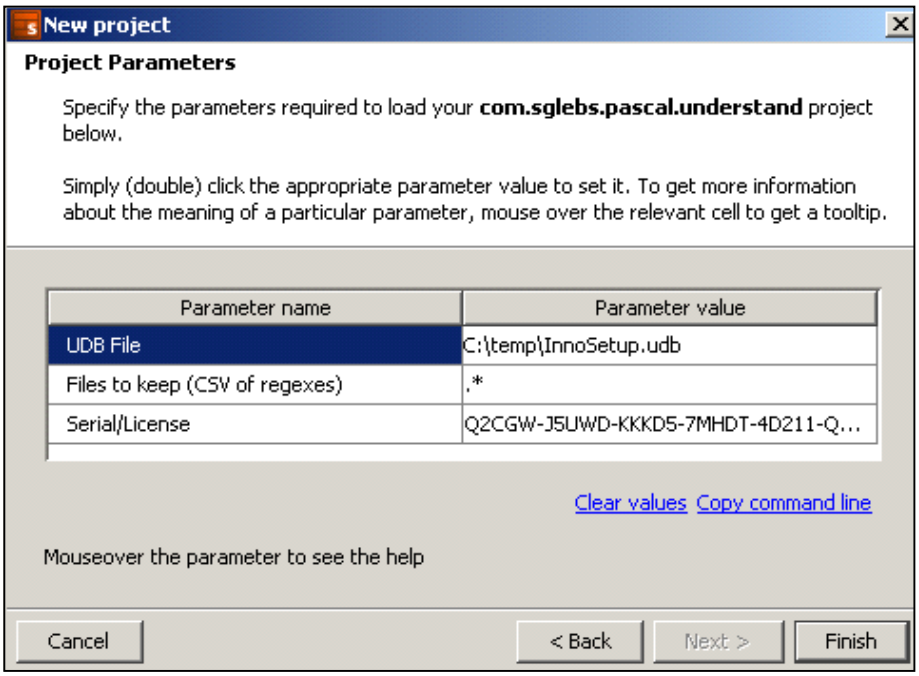
You should now have a C:\temp\InnoSetup.udb

4.4) Load the UDB into the Plugin

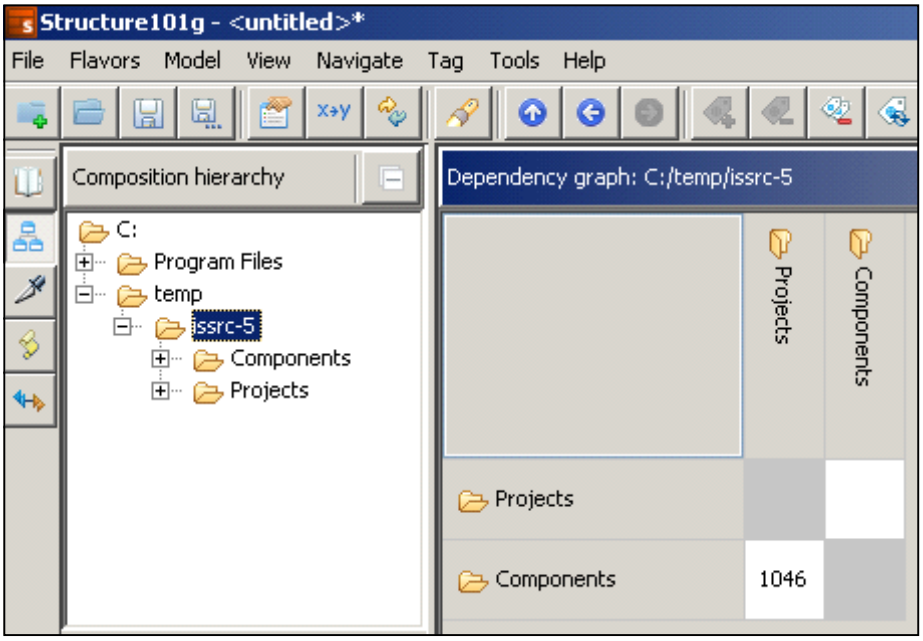
Load Structure 101g and choose File->New, then select our plugin:

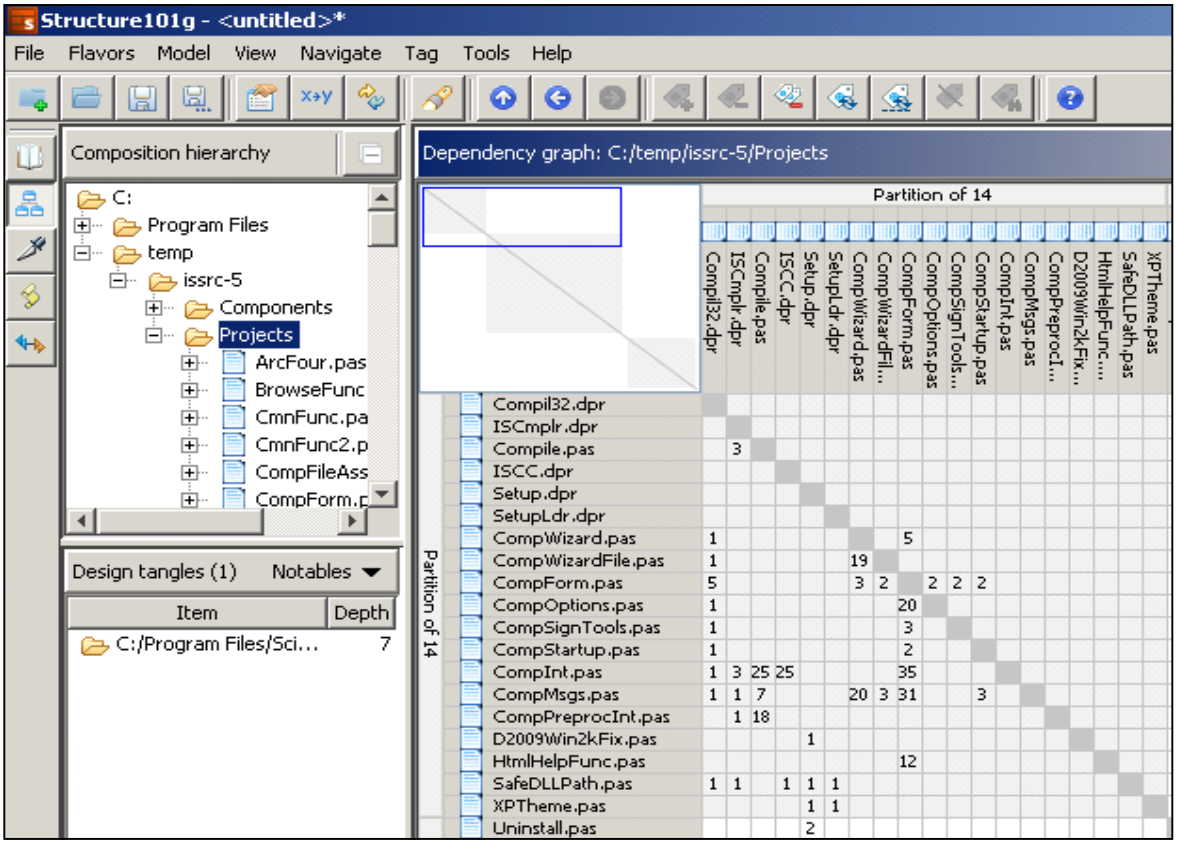


Click Next and make sure to point at the UDB file you created (C:\temp\InnoSetup.udb in our case):



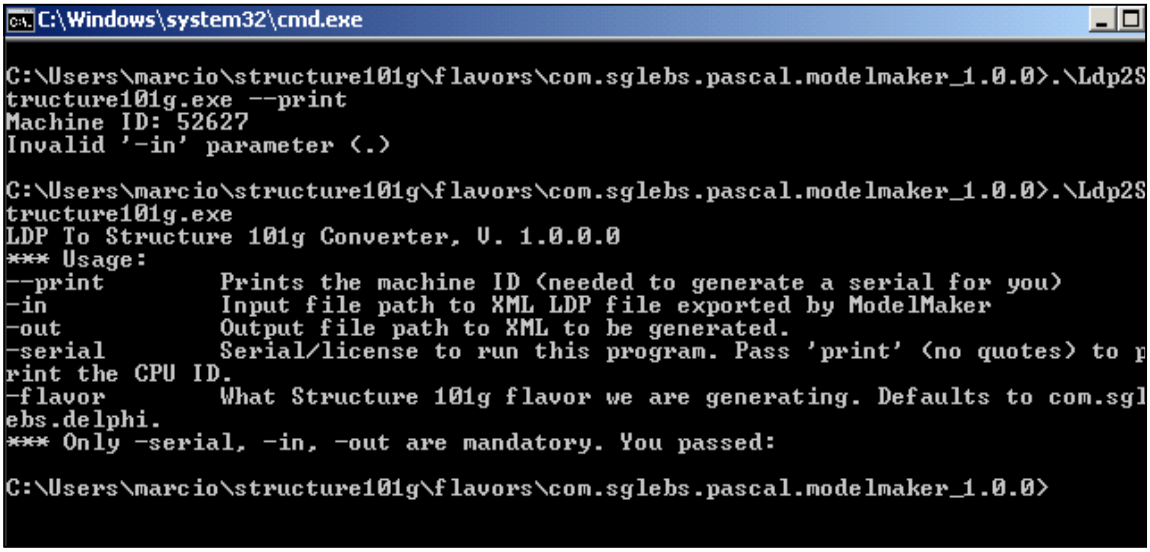
After it processes the UDB file, you should get your model loaded, like below:


Structure101g - <untitled>*
File Flavors Model View Navigate Tag Tools Help
Composition hierarchy
C:
Program Files
temp
issrc-5
Components
Projects
Dependency graph: C:/temp/issrc-5
Projects
Components
Projects
Components
1046


Structure101g - <untitled>*
File Flavors Model View Navigate Tag Tools Help
Composition hierarchy
C:
Program Files
temp
issrc-5
Components
Projects
ArcFour.pas
BrowseFunc
CmnFunc.pa
CmnFunc2.p
CompFileAss
CompForm.p
Design tangles (1)
Notables
Item
Depth
C:/Program Files/Sci... 7
Dependency graph: C:/temp/issrc-5/Projects
Partition of 14
Compil32.dpr
ISCmplr.dpr
Compile.pas
ISCC.dpr
Setup.dpr
SetupLdr.dpr
CompWizard.pas
CompWizardFile.pas
CompForm.pas
CompOptions.pas
CompSignTools.pas
CompStartup.pas
CompInt.pas
CompMsgs.pas
CompPreprocInt.pas
D2009Win2kFix.pas
HtmlHelpFunc.pas
SafeDLLPath.pas
XPTheme.pas
Uninstall.pas

5) Running any flavor from the console

Each flavor directory comes with *an EXE* file. If you run it without parameters, you will get something like this:



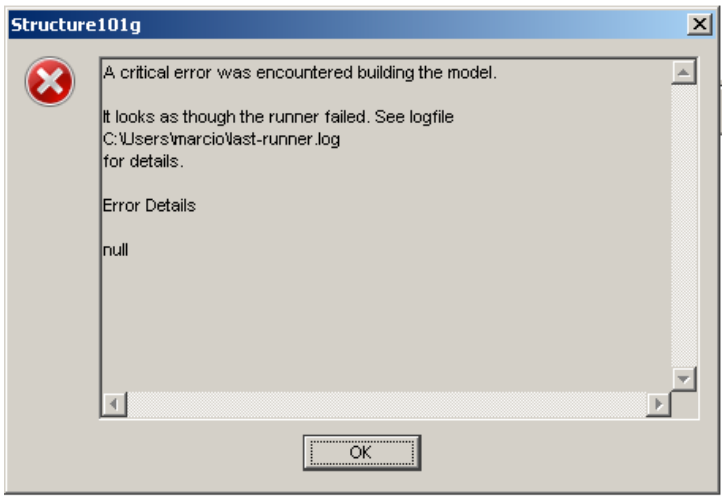
We highly recommend that you use the GUI wizard and use the little "Copy command line" link at the bottom/right of the Dialog. It will copy to the clipboard the full command-line used by the wizard behind the scenes.

Try this approach different ways until you become familiar with the command-line options. Then you can invoke the executable on your own customizing the parameters as you want.

6) Tips and Troubleshooting

6.1) Failure to Convert / Run the Flavor

In some cases the Understand flavor may fail to run. In these cases you will get an error dialog like this:



If you open the log file shown, you should find the reason. Example:

[Err] Error during conversion: 3

The possible errors and their causes are:

- **5**: The flavor could not open the UDB file. Please make sure your local copy of Understand, in the PATH, can load this file without problems. In most cases this error happens when a UDB file created with an older Understand version is being loaded, without upgrading the file first using Understand itself.
- **4**: The flavor could not find the Understand DLLs. Are you sure Understand is in the PATH for the user running the process that is performing the conversion?
- **3**: Corrupt input. There is something wrong with the input UDB file. Check its file size. If it is too small (just a few KB), there is a chance that the UDB was not populated by Understand. Load it in Understand and Project -> Analyze All Files
- **2**: Licensing error. You need an updated udb2101g.lic file in the flavors dir, customized for your Machine ID.
- **1**: An Unknown error has happened. Please report the issue to us.