Getting Setup

Getting the Source Files

1. Download the latest stable version of Sphinx4 source files from Sourceforge. At this time I used "1.0 beta5-src.zip" for this walkthrough.
2. Unzip the source files to reveal a seemingly complex folder structure as shown below:

.settings	9/22/2010 2:11 PM	File folder	
debian	9/22/2010 2:11 PM	File folder	
doc	9/22/2010 2:11 PM	File folder	
doc-files	9/22/2010 2:11 PM	File folder	
lib	9/22/2010 2:11 PM	File folder	
logs	9/22/2010 2:11 PM	File folder	
models	9/22/2010 2:11 PM	File folder	
out	9/22/2010 2:11 PM	File folder	
scripts	9/22/2010 2:11 PM	File folder	
src	9/22/2010 2:11 PM	File folder	
tests	9/22/2010 2:11 PM	File folder	
.classpath	9/22/2010 2:11 PM	CLASSPATH File	1 KB
.project	9/22/2010 2:11 PM	PROJECT File	1 KB
ANNOUNCE.txt	9/22/2010 2:11 PM	Text Document	3 KB
build.xml	9/22/2010 2:11 PM	XML File	31 KB
demo.xml	9/22/2010 2:11 PM	XML File	19 KB
grammar.gdl	9/22/2010 2:11 PM	GDL File	2 KB
index.html	9/22/2010 2:11 PM	HTML Document	65 KB
license.terms	9/22/2010 2:11 PM	TERMS File	2 KB
README	9/22/2010 2:11 PM	File	1 KB
RELEASE_NOTES	9/22/2010 2:11 PM	File	5 KB
sausage.gdl	9/22/2010 2:11 PM	GDL File	2 KB
sentences.txt	9/22/2010 2:11 PM	Text Document	1 KB

Getting the Java Development Kit

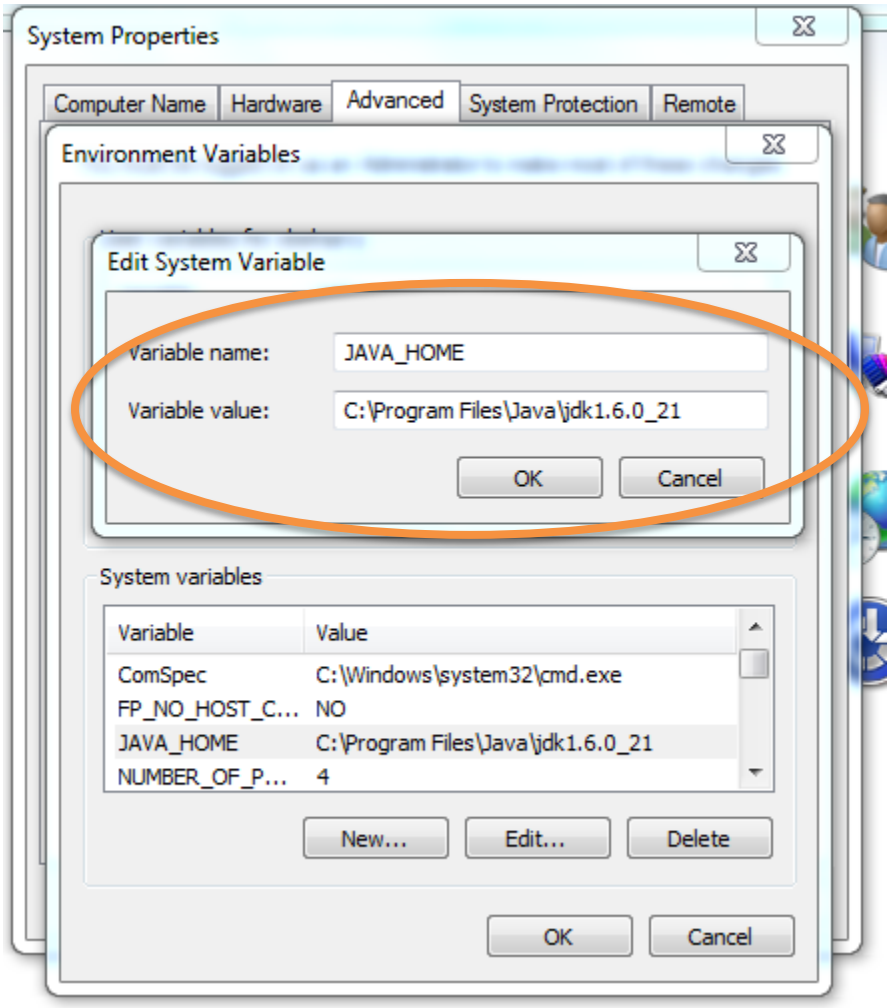
1. Download the latest Java JDK for your Operating System from Oracle Sun Developer Network by visiting http://www.oracle.com/technetwork/java/javase/downloads/index.html
2. Install the JDK by following on the on screen instructions.

Note: If you are having problems installing the JDK, be sure to have the Java Runtime Environment (JRE) installed before. You can find the link to the JRE here: http://www.java.com/en/

Getting Eclipse IDE setup to build the Sphinx4 Source Files

1. Download Eclipse IDE from http://www.eclipse.org/downloads/. I currently installed Eclipse IDE for JAVA EE Developers
2. Select a suitable workspace/ folder where you would like the Sphinx4 source files to be built.
3. From the main menu select: **File >> New >>Other >> Java Project from Existing Ant Buildfile**

4. Next you will be prompted for the Ant Buildfile. Navigate to the Sphinx4 src folder and locate the "build.xml" file.
    a. Upon selecting the build.xml file, the Project Name shall now be filled out as," Sphinx-4"
    b. Click "Finish" Now notice that the project explorer contains a Sphinx 4 folder with a little red x?
    c. Expand the Sphinx-4 folder and right click on the build.xml file and navigate to **Run As >> Ant Build**
    d. The build will fail, and now notice that Eclipse has created a Sphinx-4 folder in your workspace folder.
    e. Examine the contents of the Sphinx-4 folder. It contains only the bld folder. The build failed because some folders are missing from the newly created Sphinx-4 folder.
    f. Navigate to the unzipped "1.0beta5-src" folder and copy the following folders/files into the Sphinx-4 folder that Eclipse created:
        i. MODELS
        ii. OUT
        iii. SCRIPTS
        iv. SRC
        v. TESTS
        vi. LIB
        vii. Demo.xml
    g. Repeating step 4.c, right clicking on the build.xml file and navigating to Run Ass>> Ant Build the build will fail because of 2 things:
        i. It cannot find the lib/jsapi.jar file which is need to build the JAVA Speech API
        ii. The environment variable JAVA_HOME is currently set to "C:\Program Files\Java\jre6"
    h. First let us get the jsapi.jar error. Navigate to the Sphinx-4 folder that eclipse created and further navigate into "lib" folder in there. Click on the "jsapi.exe" file to grab the jsapi.jar which will be created once you agree to the End User License.
    i. Go to the Control Panel >> System >> Advanced and click on Environment Variables
        i. Under System variables add a new system variable with the following parameters:
            1. Variable Name= JAVA_HOME
            2. Variable value = C:\Program Files\Java\jdk.x.x_x

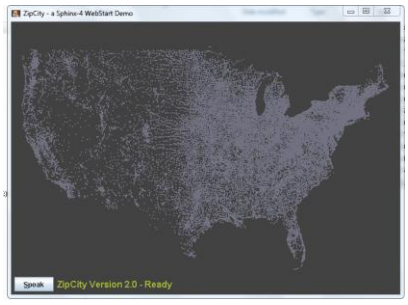


Note: "jdk.x.x_x" should be replaced with the jdk version that was obtained earlier.

ii. You will **NEED TO RESTART** your computer in order to detect the addition of this new system variable.

j. Once your computer has restarted, open Eclipse again and repeat step 4.c and hopefully now the build is successful.

k. You should notice a bin folder is now created in your Sphinx4 folder that contains *.jar files. I personally like the ZipCity example.

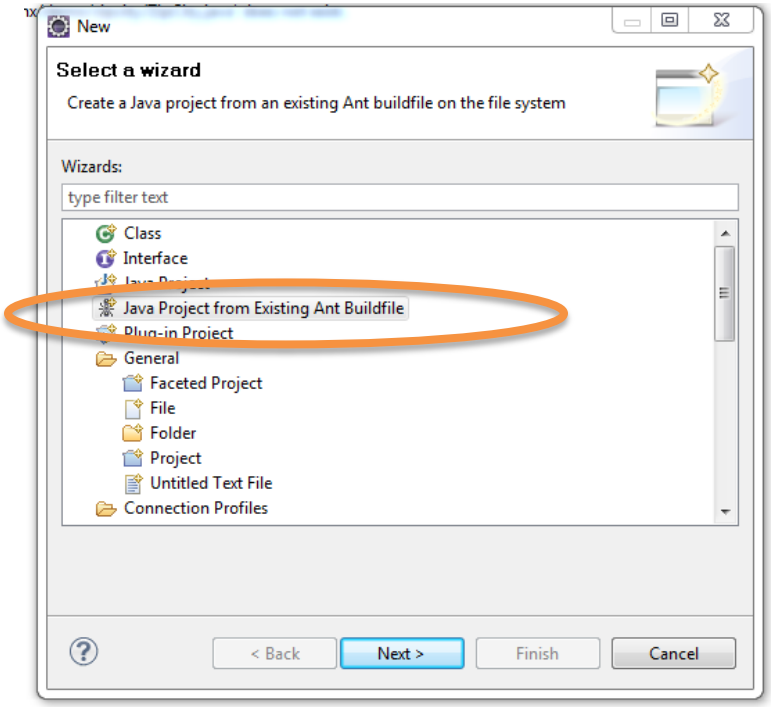


Playing with the Source Code ☺

At this point we have been able to compile the Sphinx4 source and retrieve the built examples. Our next step is to naturally look at the source code and being making little modifications to deepen our understanding of the code.

Building demo.xml

1. From the main menu select File >> New >> Other >> Java Project from Existing Ant Buildfile as seen below:



2. After pressing Next, you will be prompted for the Ant Buildfile. Navigate to the unzipped "1.0beta5-src" folder and select the demo.xml file. Eclipse will state that a project with that name already exists and will not let you continue until you change it. I renamed my project by appending "_apps" that is to say my Project Name was now, "Sphin-4_apps".
3. You will notice in your project explorer that there is again a little red x. This is similar to the first red x we saw when trying to compile the build.xml file. If we click on the "apps" folder in Project
4. Explorer we see a lot of little red x's.
5. Navigate to the Sphinx4 folder that Eclipse created earlier when we getting the IDE setup and copy the following folders from Sphinx-4 folder into the Sphinx-4_apps folder:
    a. LIB
    b. MODELS
    c. OUT
    d. SRC
    e. SCRIPTs

   f. TESTS

6. From the Eclipse Project Explorer, right click on the Sphinx04_apps folder and select "Properties".
7. Under Java Build Path, select Libraries and "Add External JARs" Add the following external JARs from your Sphinx-4_apps lib folder:
   a. JS.JAR
   b. JSAPI.JAR
   c. JSAPI-1.0-BASE.JAR
   d. SPHINX4.JAR
   e. TAGS.JAR
   f. TIDIGITS_8GAU_13DCEP_16K_40MEL_130HZ_6800HZ
   g. WSJ_8GAU_13DCEP_16K_40MEL_130HZ_6800HZ
8. Almost there ☺ Open the demo.xml file in Eclipse and under the Section that reads "Where to Find Things" we need to add a path element location for the jsapi base.jar. Your new xml node <path id="libs"> should look like this:

```
<path id="libs">
  <pathelement path="${demo_classes_dir}"/>
  <pathelement location="${lib_dir}/sphinx4.jar"/>
  <pathelement location="${lib_dir}/jsapi.jar"/>
  <pathelement location="${lib_dir}/jsapi-1.0-base.jar"/>
  <pathelement location="${lib_dir}/tags.jar"/>
  <pathelement location="${lib_dir}/js.jar"/>
  <pathelement location="${lib_dir}/junit-4.4.jar"/>
 </path>
```

9. Right click on the demo.xml and Run As >> Ant BuildFile and the examples should compile successfully.
10. Now you should be able to Right Click on any example, Right Click and Run As Java Application.