

MOVES2004 Installation Guide

MOVES Implementation Team
January 4, 2005

Table of Contents

- I. List of CD contents
- II. Installation of MYSQL
- III. Installation of MOVES using InstallAnywhere
- IV. Basic Example of How to Run MOVES
- V. Miscellaneous MOVES2004 Installation Notes

List of CD Contents

- I. List of installation Files and Folders needed to Install and Run the MOVES2004 Program. (Note : MOVES2004 source was developed with the versions of the software distributed on this CD. If later versions of these software packages are used, e.g., Java Platforms post dating the Std. Ed. v1.4.2, MOVES2004 may not work. In particular, the versions of the Java standard development kit and MYSQL on this CD need to be installed for the version of MOVES2004 on this CD to work properly. Installation of MOVES2004 *will not* overwrite the computer's current default version of Java. Section V. of this installation guide discusses the MOVES2004 Java installation.)
- (a) MYSQL database installation files and documentation are in the zip file and .pdf file :
mysql-max-3.23.49-win.zip
manual.pdf (see also, <http://dev.mysql.com/doc/>),
respectively. They are located in the “**mysql**” directory on the installation CD.
- (b) Folder containing complete MOVES set-up program which extracts JAVA standard development kit, MOVES software, utility programs, and MOVES default database :
MOVESInstaller
- (c) *Optional* zipped set-up file for Microsoft Windows based MYSQL tool (MySQL Control Center) which effects a graphical interface to the MYSQL databases
mysqlcc-0.9.4-win32.zip
located in the “**mysql**” directory on the installation CD.
- (d) *Optional* MYSQL driver/database connection tool to allow/translate MYSQL database to Microsoft products such as EXCEL, ACCESS, or FoxPro
MyODBC-3.51.06.exe (set up program)
“MySQL-ACCESSmdbODBCandExcel.doc” (notes for ODBC, ACCESS and EXCEL)

both located in the “**mysql**” directory on the installation CD.

To install the MOVES software onto your computer, the MYSQL software must be installed first. As mentioned above, it is located in the **mysql-max-3.23.49-win.zip** file. The MOVES java source and compiled class files along with utilities needed to run MOVES are installed by use of the installation program, “insmoves.exe”, in the Windows subdirectory of the MOVESInstaller directory on the CD. Step-by-step instructions to install both of these software packages are included below.

- II. MySQL installation on Microsoft Windows NT, 2000 or XP. (For a more complete guide which includes other versions of Microsoft Windows, see “Install MySQL.doc” on this distribution CD in the “**mysql**” directory.)

- (i) Use winzip to extract files from the mysql-max-3.23.49-win.zip file to a temporary or existing folder on your computer.
- (ii) Among the extracted files is a file called “**setup.exe**”. Double click on the file “**setup.exe**”. Follow the instructions to complete the setup of MySQL. Note: Use the typical and default setup settings that are pre-selected for you in the setup program. If these settings are not used, you may have to change some of the MOVES2004 settings in the files “build.xml” or “setenv.bat”. Instructions to do these types of modifications are not included in this document.
- (iii) Create a DOS prompt and move to the “**c:\mysql\bin**” directory.
- (iv) From the dos prompt in the “**c:\mysql\bin**” directory, type the command “**mysqld-max-nt^–install**”, (“**c:\mysql\bin\mysqld-max-nt^–install**”). (Please note that there is a single space between “**mysqld-max-nt**” and “**-install**”. This space is indicated by the carrot symbol, “**^**”.)
- (v) Then logoff and log back on to the computer
- (vi) To check mysql, “**c:\mysql\bin\mysql**”, should yield the mysql prompt, “**mysql>**”, along with the message,

“Welcome to the MYSQL monitor. Commands end with ; or \g. ...”

(Type the command “**mysql>quit**” or “**mysql>exit**” exit the mysql program.)

- (vii) On Windows NT, 2000, and XP operating systems The “**mysqld**” service installed in step (iv) can be stopped and started within a DOS window with the commands “**C:\net^stop**” and “**C:\net^start**”. Here, again, the carrot symbol, “**^**”, represents a single space. More details about these commands and their use can be found in the MySQL manual included on the MOVES installation CD in the “**mysql**” directory. On Windows 98 systems within a DOS window in the “**C:\mysql\bin**” directory use the “**mysqladmin –u root shutdown**” command, i.e.,

C:\mysql\bin\mysqladmin^–u^root^shutdown.

- (viii) To use the *optional* Microsoft database tools such as Access or Foxpro an ODBC driver (e.g., **MyODBC-3.51.06.exe**) needs to be installed (see also the documentation in the file : “**MySQL-ACCESSmdbODBCandExcel.doc**”)
- (iv) To use the *optional* MYSQL control center database tool, use the installation program in the zip file :

mysqlcc-0.9.4-win32.zip

Additional information about the MYSQL control center can be found at the website, “**<http://www.mysql.com/products/mysqlcc/>**”. More detailed notes on the MySQL Control Center program are in Section V.

- III. Installation of MOVES using the installation program “**insmoves.exe**”. This program is located in the “Windows” directory of the MOVES installation CD (see Figure 1. below).

The following set of figures should help guide the user through the different dialogs which appear when using the installation program.

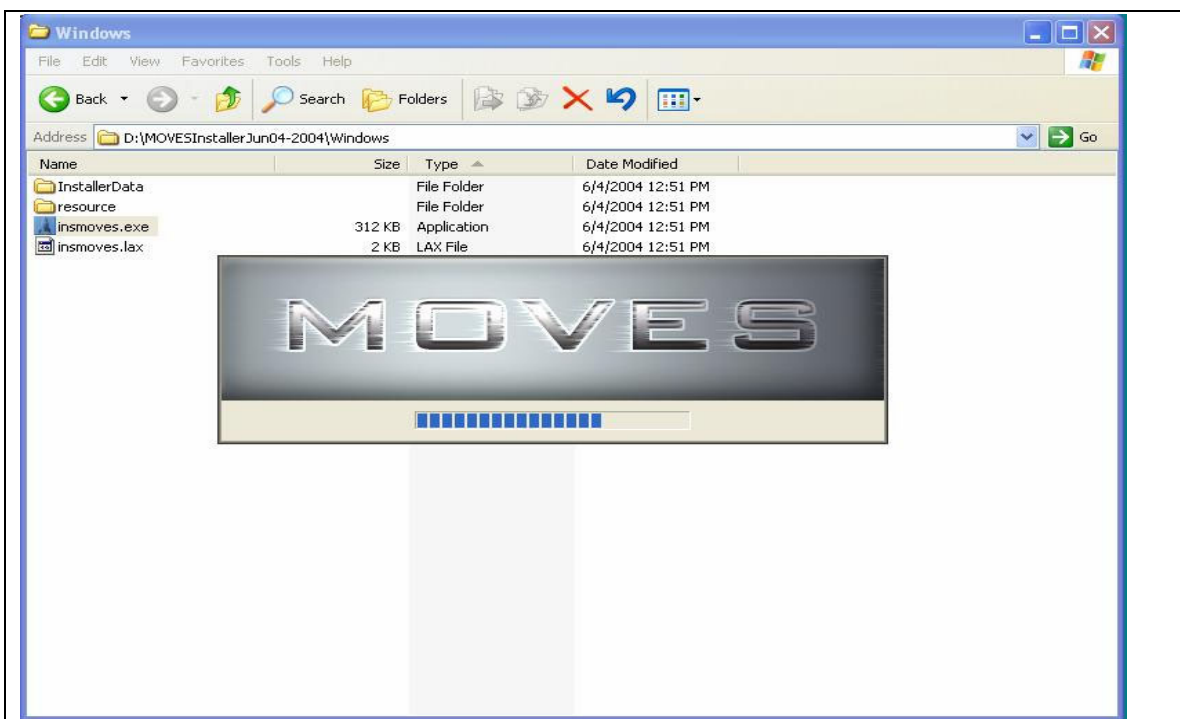


Figure 1. Begin the installation program by double clicking on the “insmoves.exe” file which is on the CD in the “Windows” subdirectory of the MOVESInstaller directory as shown in the figure above.

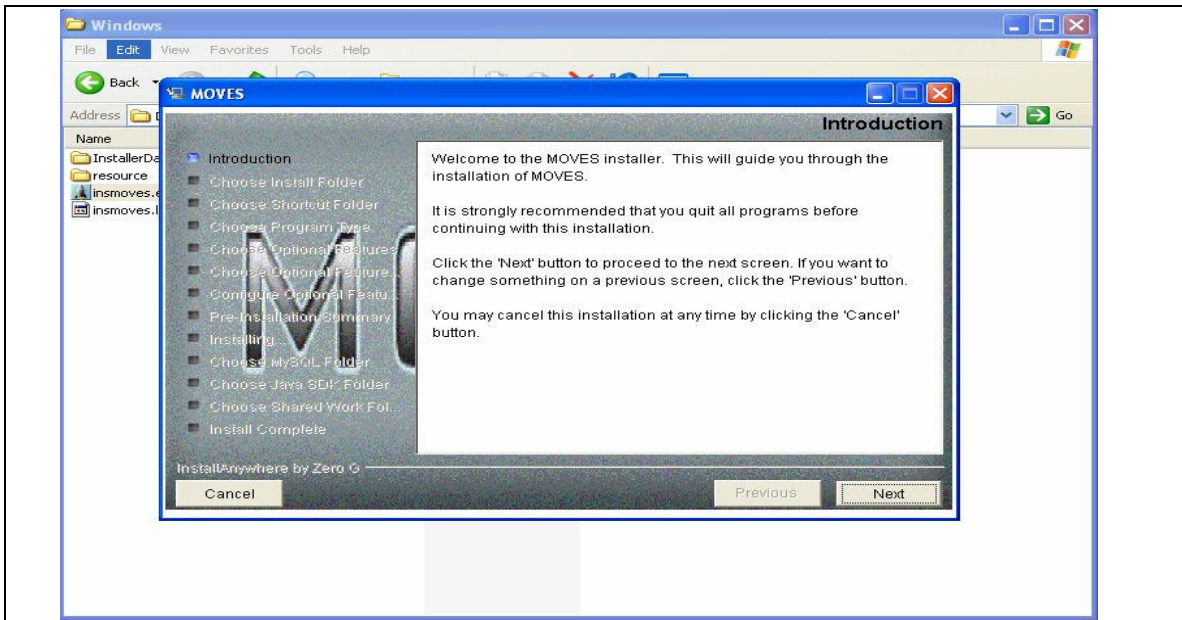


Figure 2. This figure illustrates the introduction panel of the MOVESInstaller program.

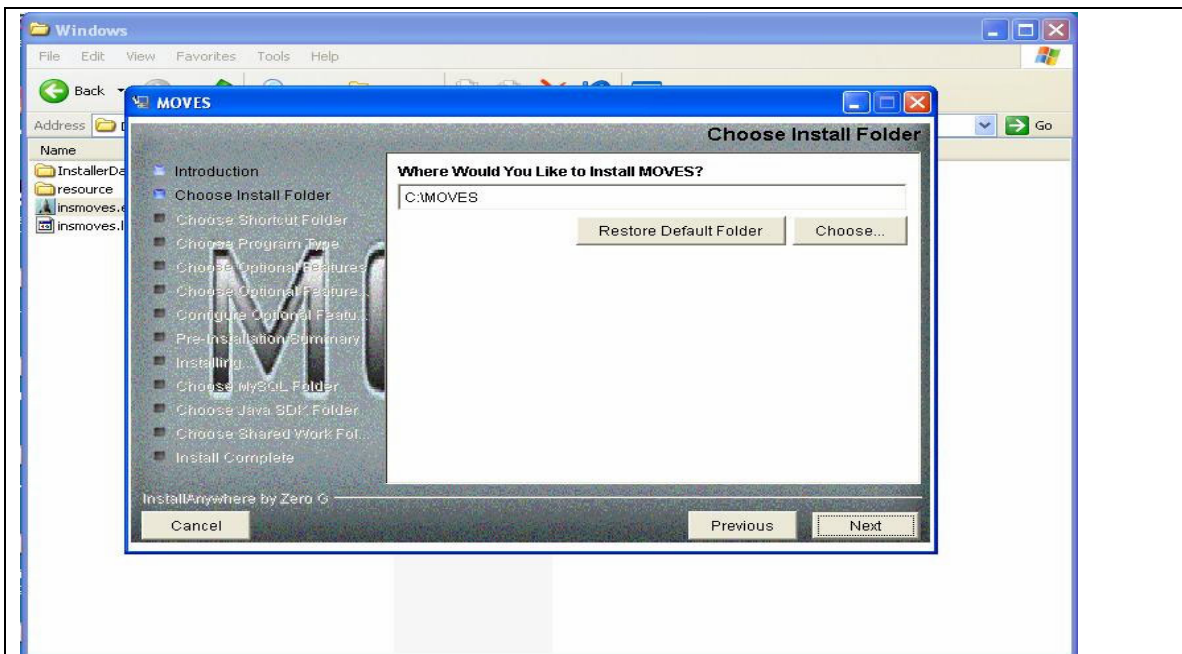


Figure 3. Choose the folder where the configuration and source files will be installed. The current default directory for this version of the installation program is “C:\MOVES”. If another folder is chosen this will be automatically reflected in the configuration file, “MOVESConfiguration.txt”, “WorkerConfiguration.txt”, and “setenv.bat”.

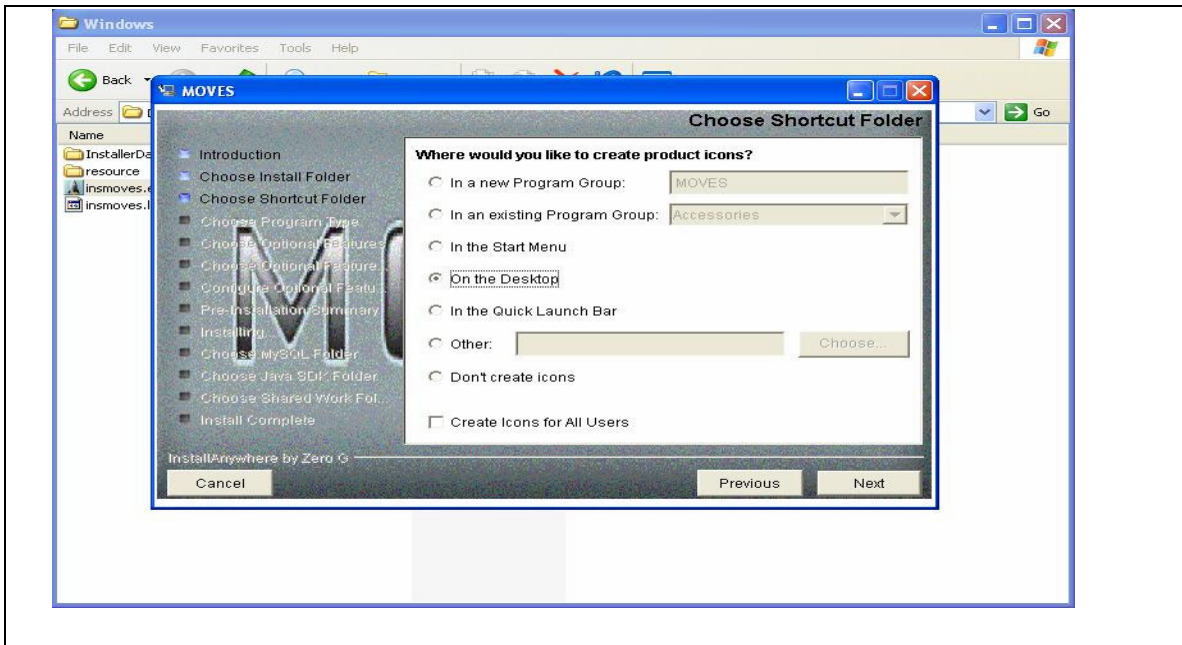


Figure 4. The installation program creates icons which will start the MOVESWorker and MOVESGUI programs. This allows the user to choose where those icons are placed (see also Figure 19 below).

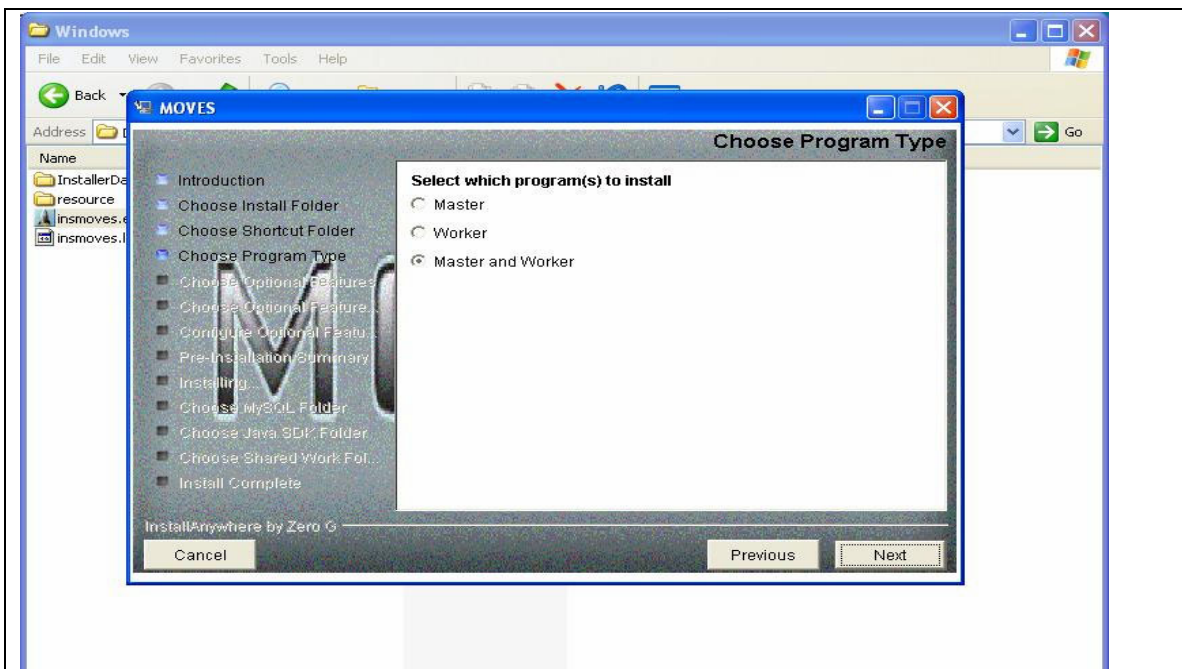


Figure 5. As mentioned above, the MOVES program consists of a Master and a Worker. The Master program controls input, output, and does some calculations. The Worker, though, does the majority of the calculations and, more importantly, allows for distributed processing. You do need them both of them to run MOVES. A complete description of the options and configurations which can be used for the Master and Worker programs is given in the MOVES User Guide.

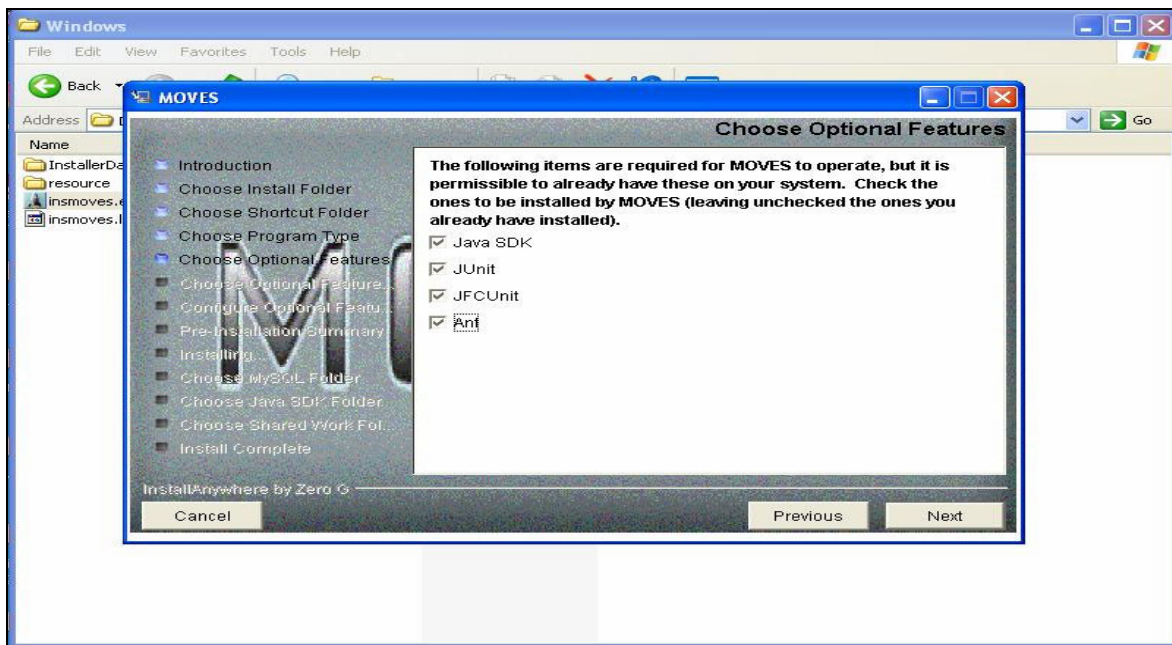


Figure 6. MOVES requires the above utilities to run. Mark a check in each that is not on your computer. In an upcoming dialog, the folder or directory names in which these utilities are installed or will be installed, will be requested. Currently MOVES uses version 1.5 of ant, version 3.8.1 of junit, version 2.06 of jfcunit, and version 1.4.2_03 of the Java standard development kit (sdk). The default installation directories are “C:\j2sdk1.4.2_03”, “C:\jfcunit2.06”, “C:\ant”, and “C:\junit3.8.1” for the Java sdk, jfcunit, ant, and junit, respectively (assuming the root drive is named “C:\”, see Figure 7).

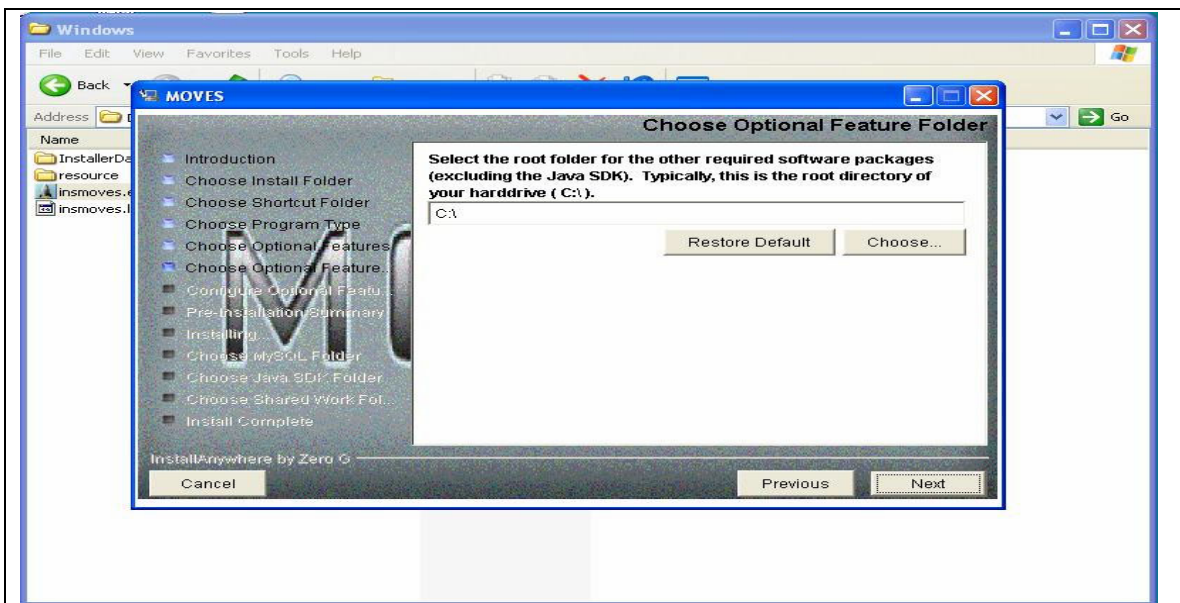


Figure 7. Besides Java MOVES uses additional support software (ant, jfcunit, and junit, see Figure 6 above) which must be loaded onto the computer. In this dialog, choose the root directory where these additional software programs will be installed.

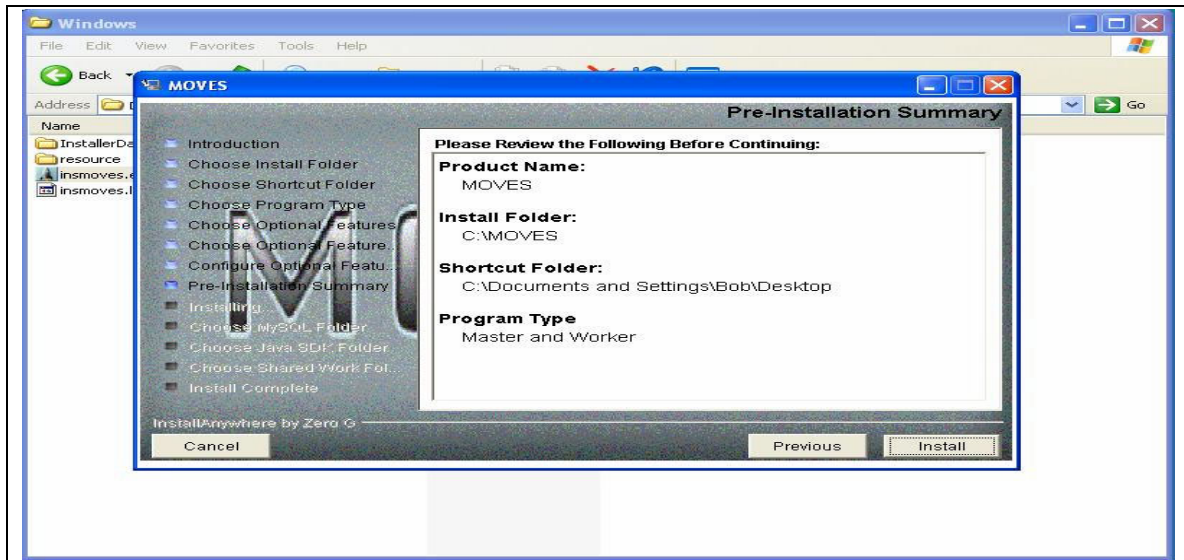


Figure 8. Summary of the pre-installation dialogs. Selecting the install button will begin the installation of MOVES.



Figure 9. The installation program begins by copying the needed files from the CD to a temporary file on the computer's hard drive. This takes a while, so please be patient.

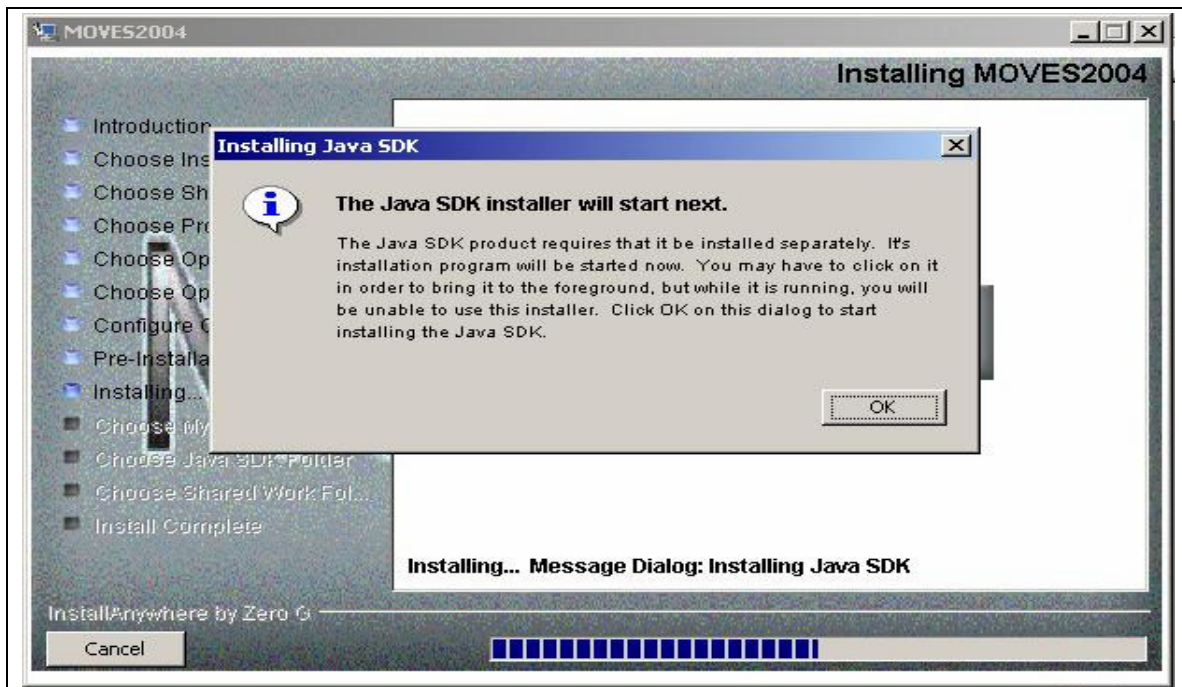


Figure10. The JAVA sdk has it's own installation program which is contained in the MOVES installation program. Click on the “o.k.” button to begin this process. Before installing JAVA, be sure that all other programs are closed (except, of course, the MOVES installation program). Also during this installation process the directory for the JAVA sdk is chosen; see also Figure 19 below. Please take note of this directory.

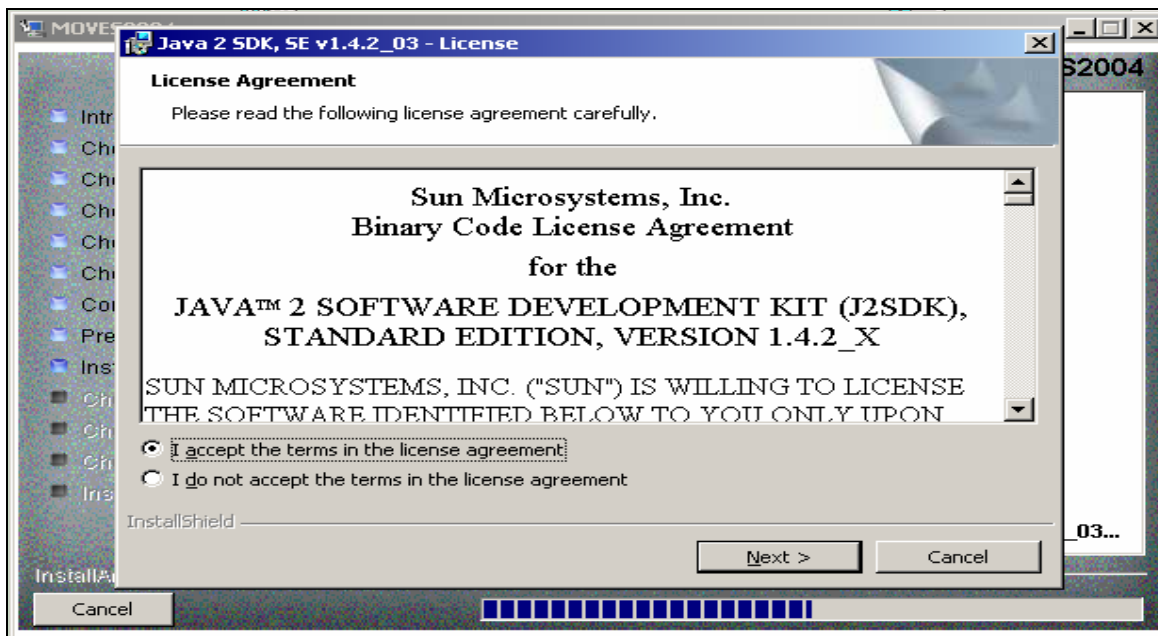


Figure 11. JAVA requires acceptance of the Sun Microsystems license agreement. Click on the “I accept ...” and then click the “Next” button to continue with the Java installation.

WARNING : The java installation package allows for the installation of four features (1.) jdk (Development Tools), (2.) demos, (3.) source code, and (4.) java runtime environment (Public Java Runtime Environment). MOVES only needs the jdk feature installed. The latter three options are not necessary to run MOVES. Also, if you choose to install the Public Java Runtime Environment, the registry on your computer will be changed to include the path to this java 1.4.2 runtime folder, i.e.,

"C:\ProgramFiles\Java\j2re1.4.2_3".

So, if you are not using the setenv.bat file (or some other direct method) to set the path for MOVES, the default javaw.exe (which is the program that runs the java windows application) will be the one that registry has recorded, i.e., the one in the folder "C:\ProgramFiles\Java\j2re1.4.2_3".

The following Figures 12, 13, and 14 illustrate the drop down menus to choose so that only the needed development tools are installed on your computer. So long as the above warning is headed and the steps in Figures 13 through 16 are followed, there should not be any problems running MOVES with Java 1.4.2 and another Java program running a different version of Java.

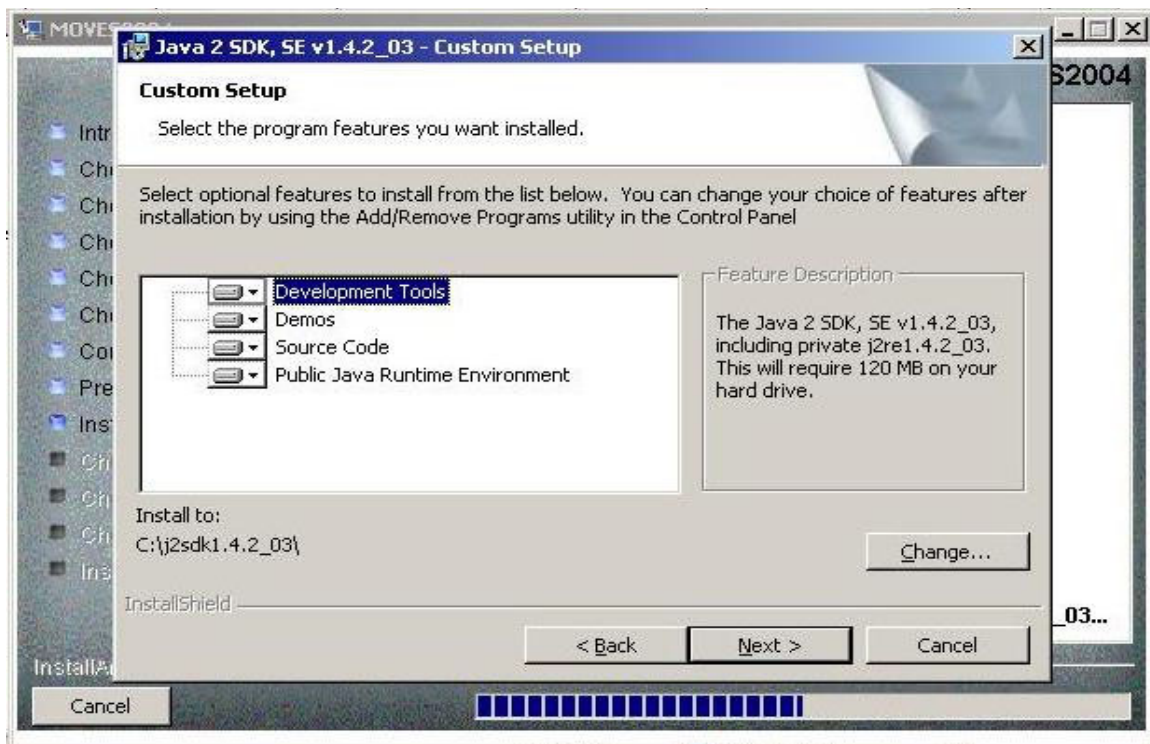


Figure 12. Java installation window showing the four different features which will be installed by default if the user chooses to do so. However, MOVES only requires the "Development Tools" feature highlighted in blue. Figures 14 through 15 show how to deselect the default "Demos", "Source Code", and "Public Java Runtime Environment" features. Note also that the folder the in which the feature is installed is indicated on the left at the bottom of the feature list box.

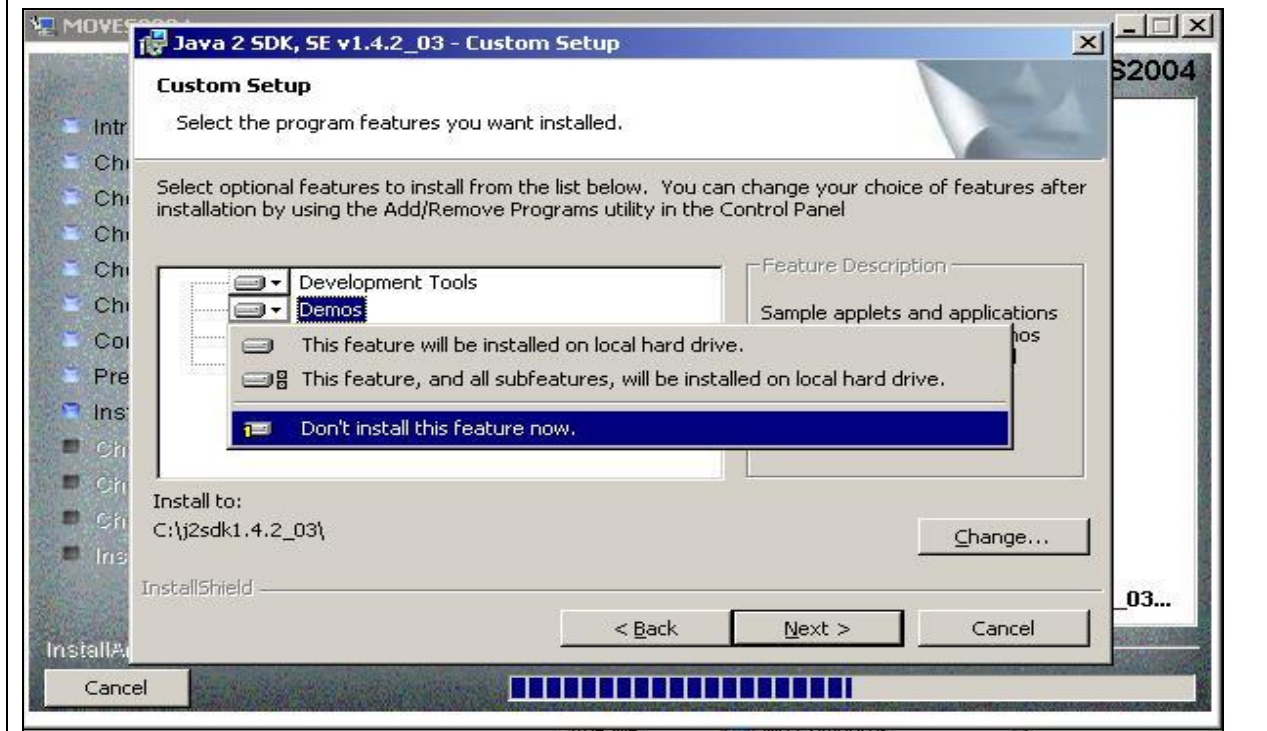
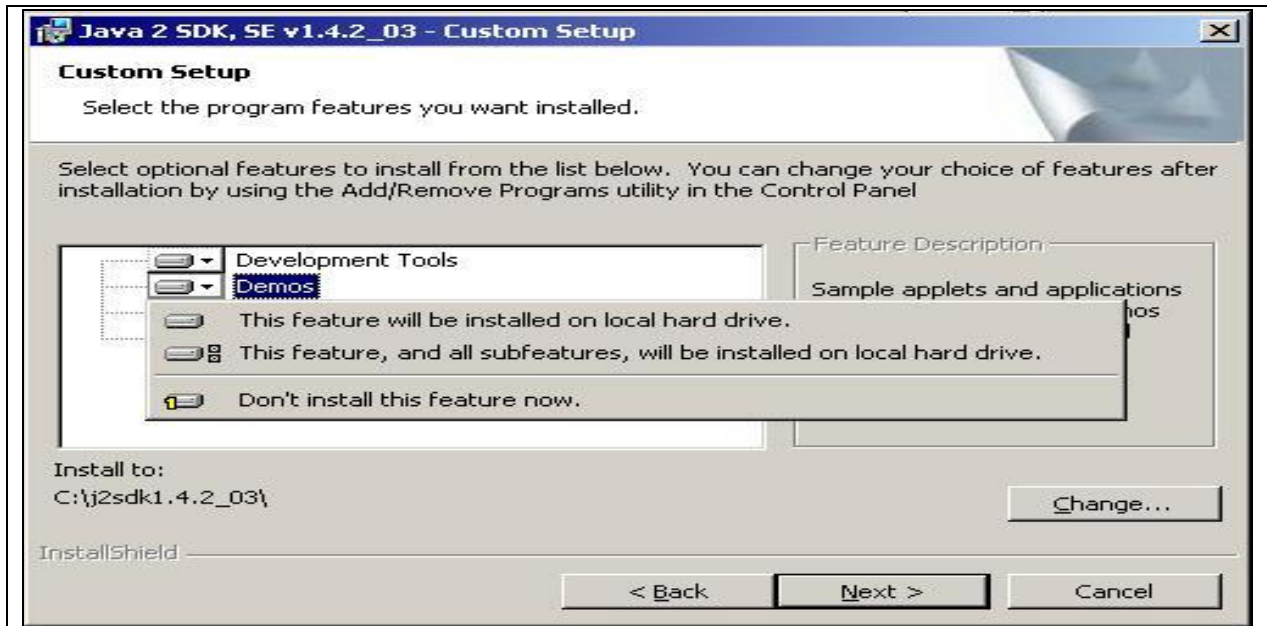


Figure 13. Each of these features has a drop down menu which allows the feature not to be installed. Choose the bottom-most menu item labeled “Don’t install this feature now”.

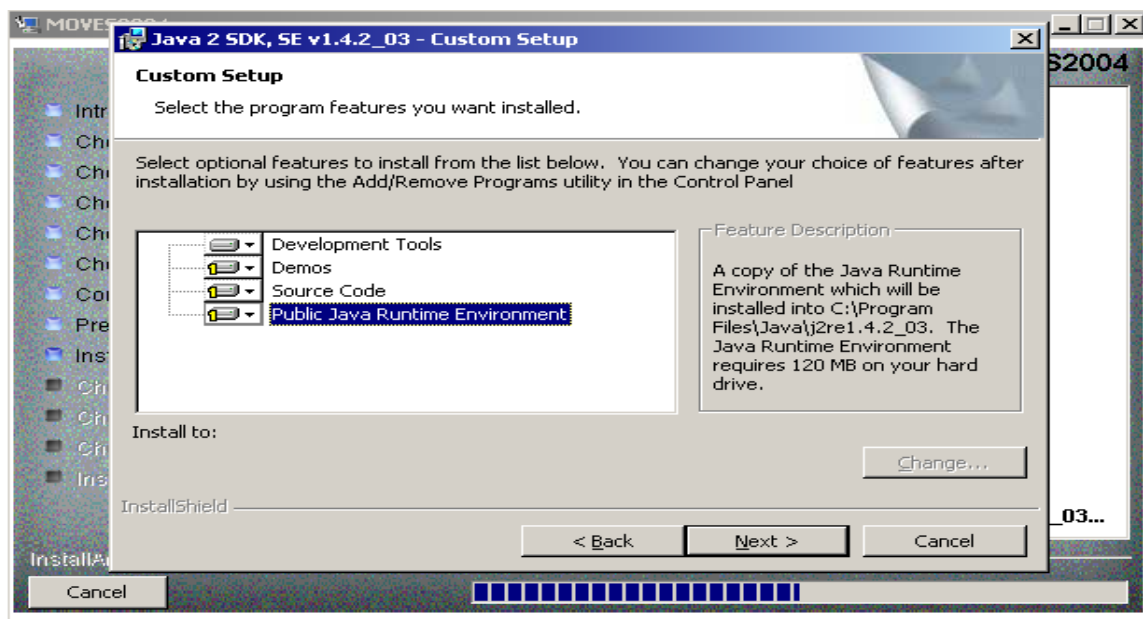


Figure 14. Features which are not to be installed will have the yellow 1 label in the left bottom corner as illustrated above. Once this is completed click the “Next” to continue with the installation of Java.

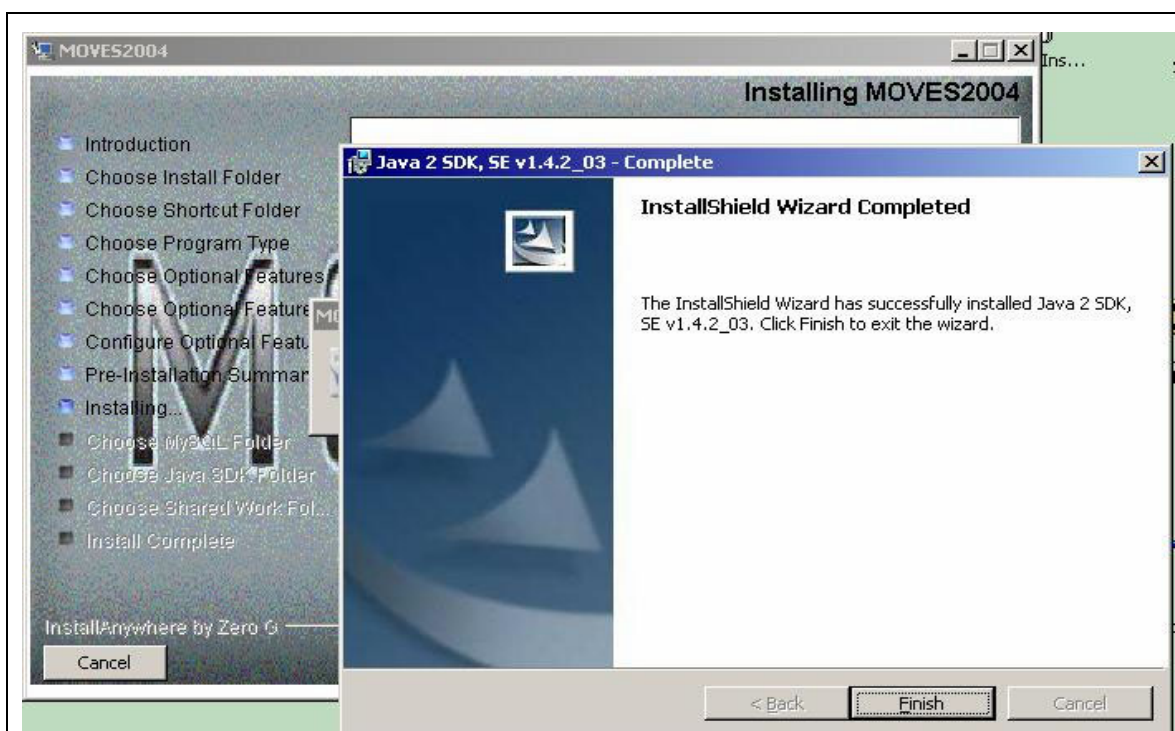


Figure15. There are a few intermediate steps or dialogs before this final JAVA installation dialog. If the JAVA sdk is installed correctly, this dialog should appear. And then, the MOVES installation will continue once the “Finish” button is selected.

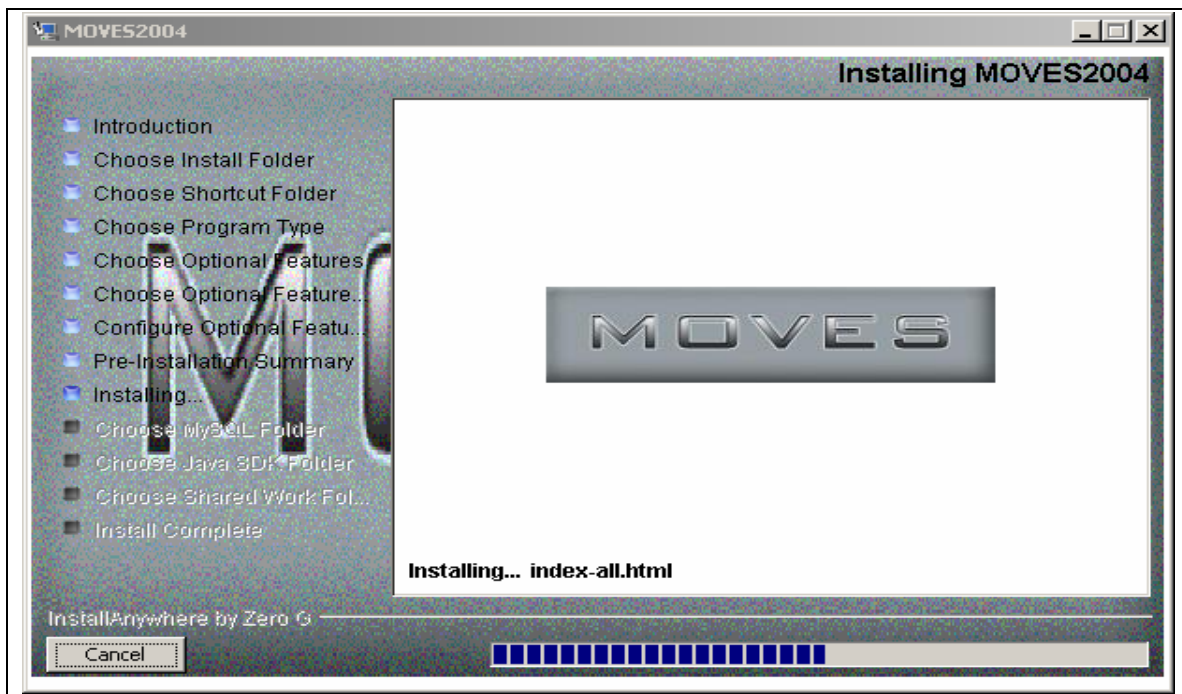


Figure16. After the JAVA installation process is complete, the MOVES installation program continues installing additional MOVES components.

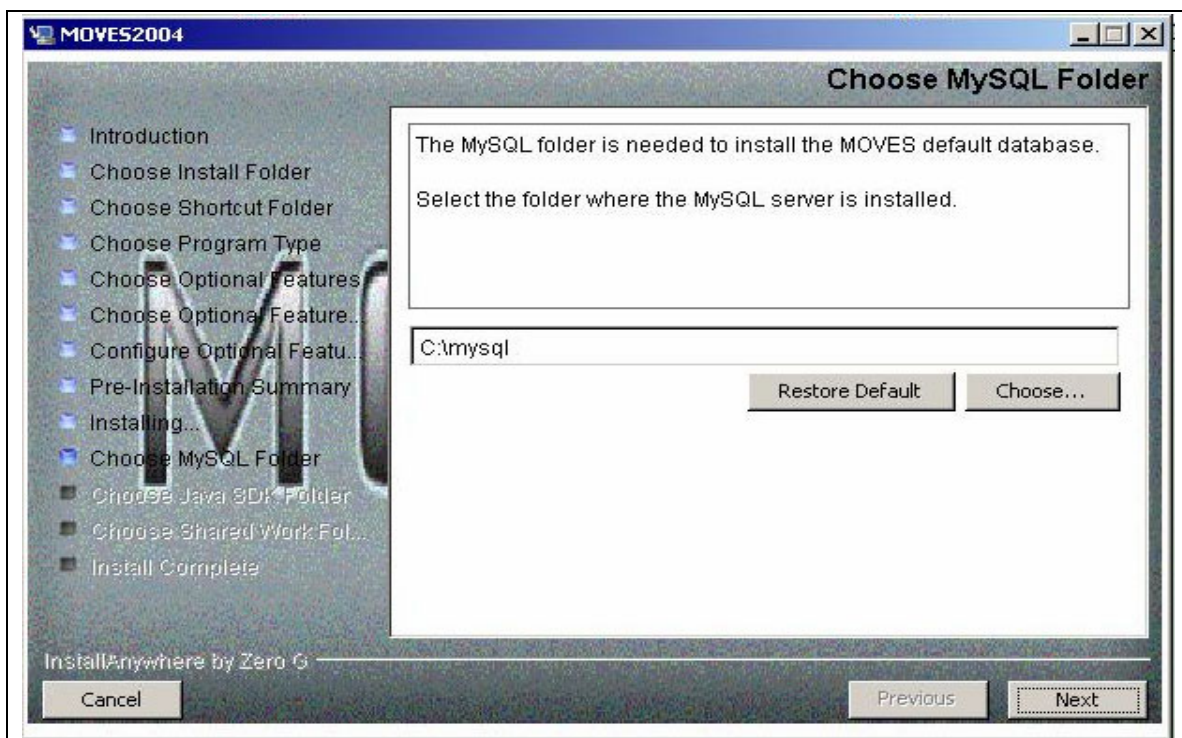


Figure 17. In this dialog the folder where MYSQL has been installed is chosen. This should be the same folder that was selected when MYSQL was installed from the MYSQL installation procedure described above.

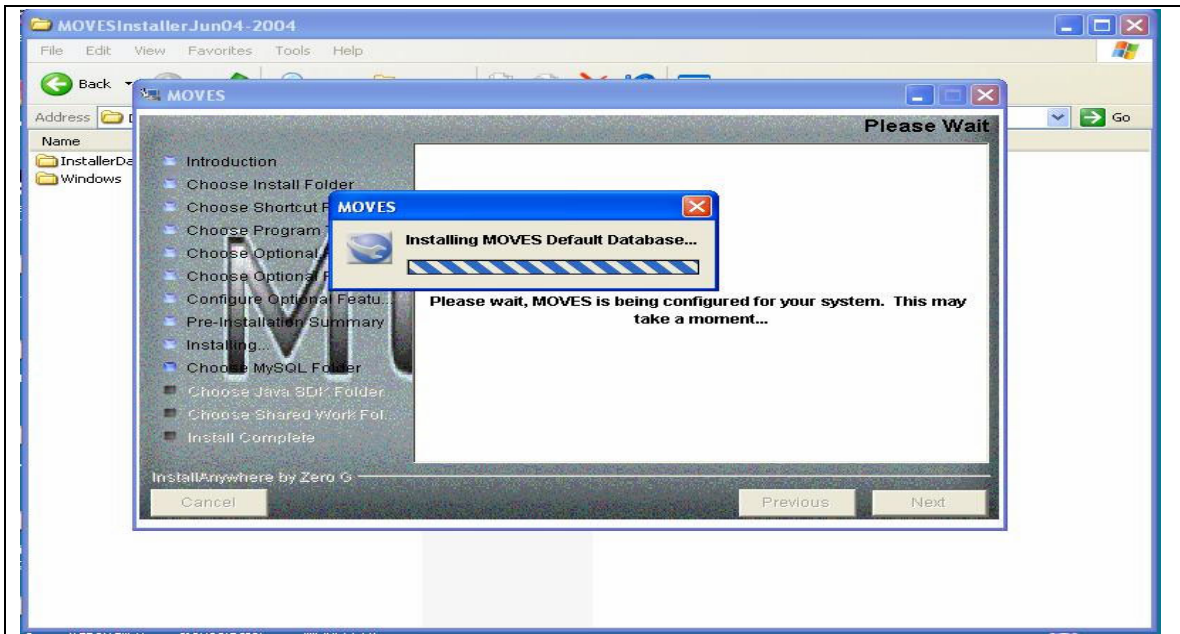


Figure18. Once the program knows where the MYSQL database has been installed the MOVES default database is installed in the appropriate subdirectory, i.e., “.../mysql/data/movesdefault”. Depending on the speed of the computer this may take some time.

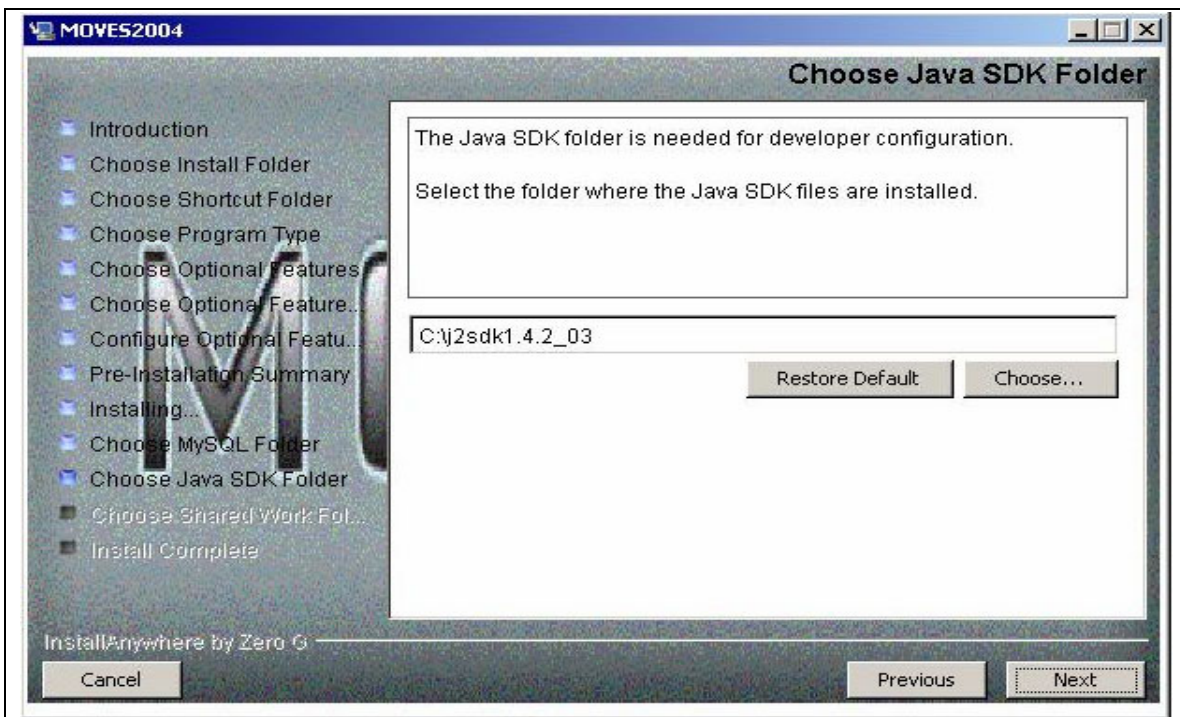


Figure 19. The installation program needs to know the name of the directory in which the JAVA standard development kit was installed. This, of course, is from the JAVA installation completed earlier.

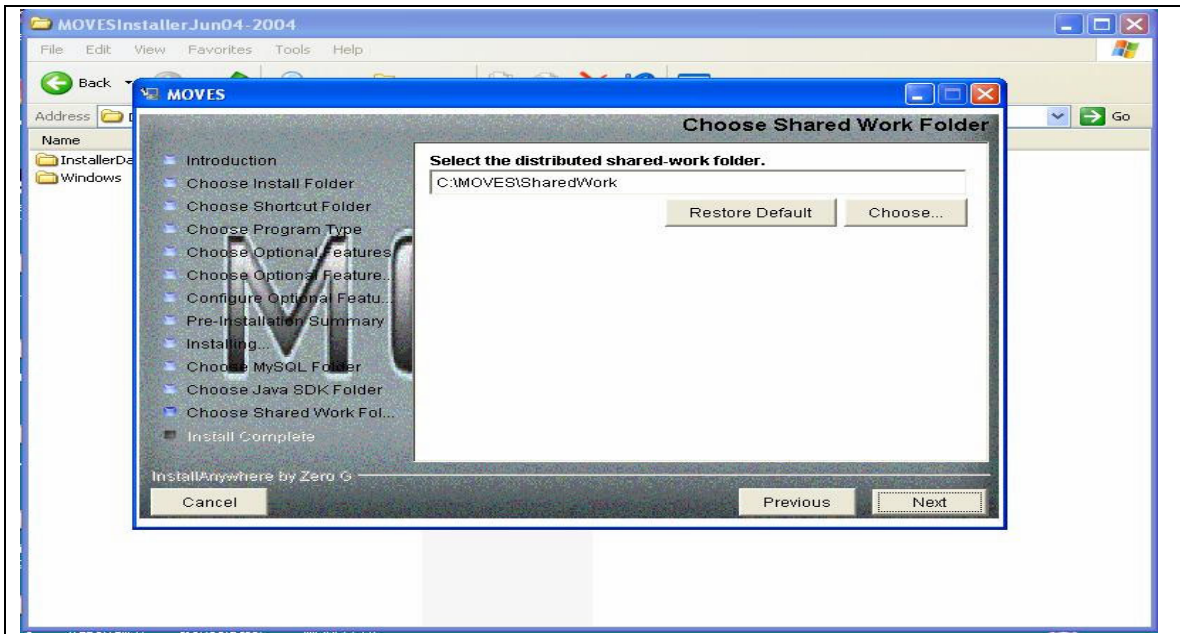


Figure 20. The shared work folder is used by both the Worker and Master programs. It is a common folder that both of those programs need to know about. This information can also be viewed in the files, “MOVESConfiguration.txt” and “WorkerConfiguration.txt”. (There are two more configuration files, “setenv.bat” and “build.xml”, which are used by MOVES.)

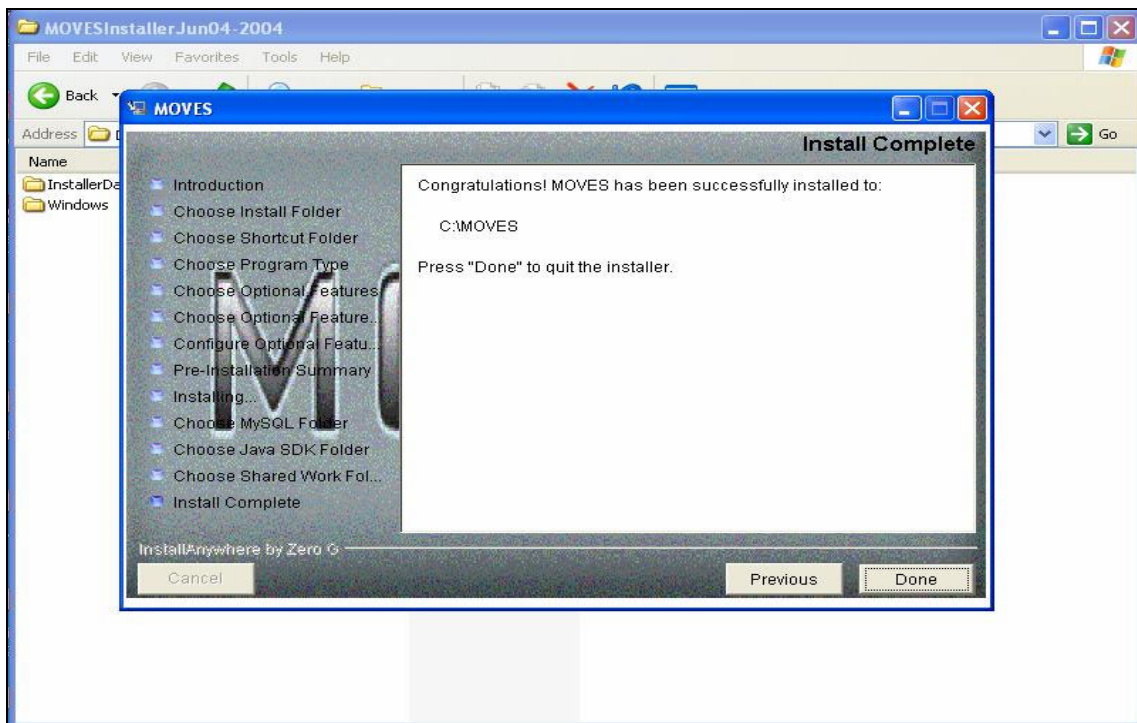


Figure 21. This is the final MOVES installation dialog. It states whether or not the installation was successful or if there were errors encountered during the installation process.

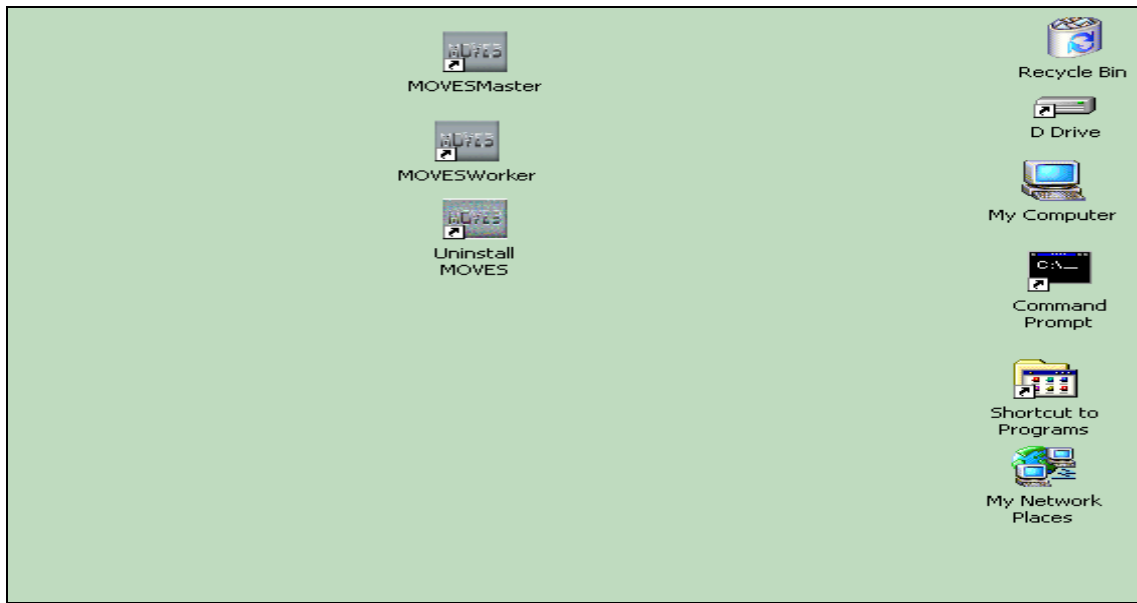
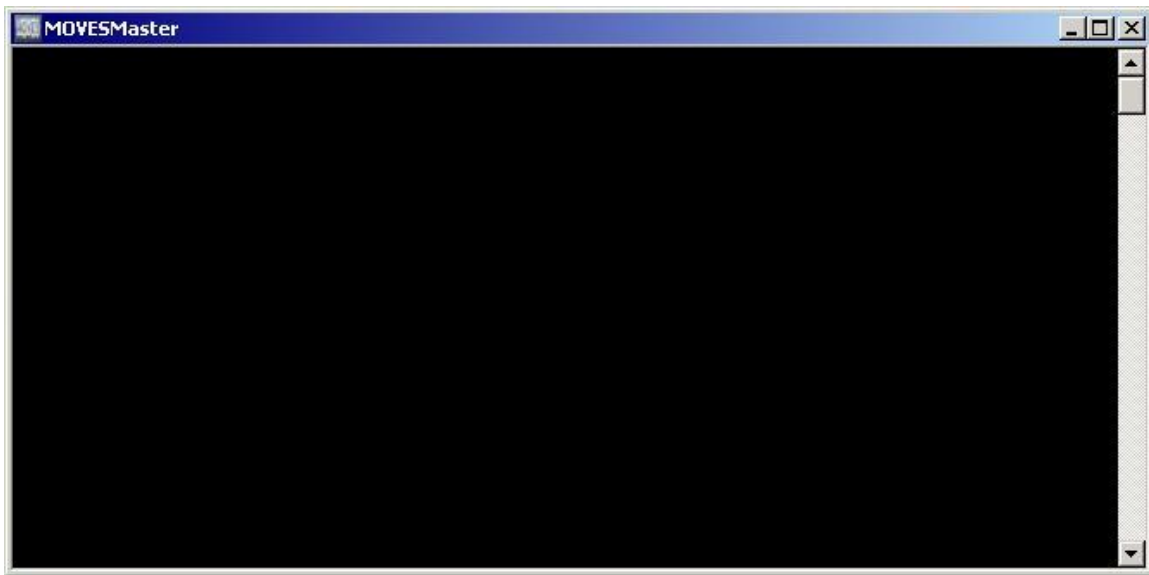


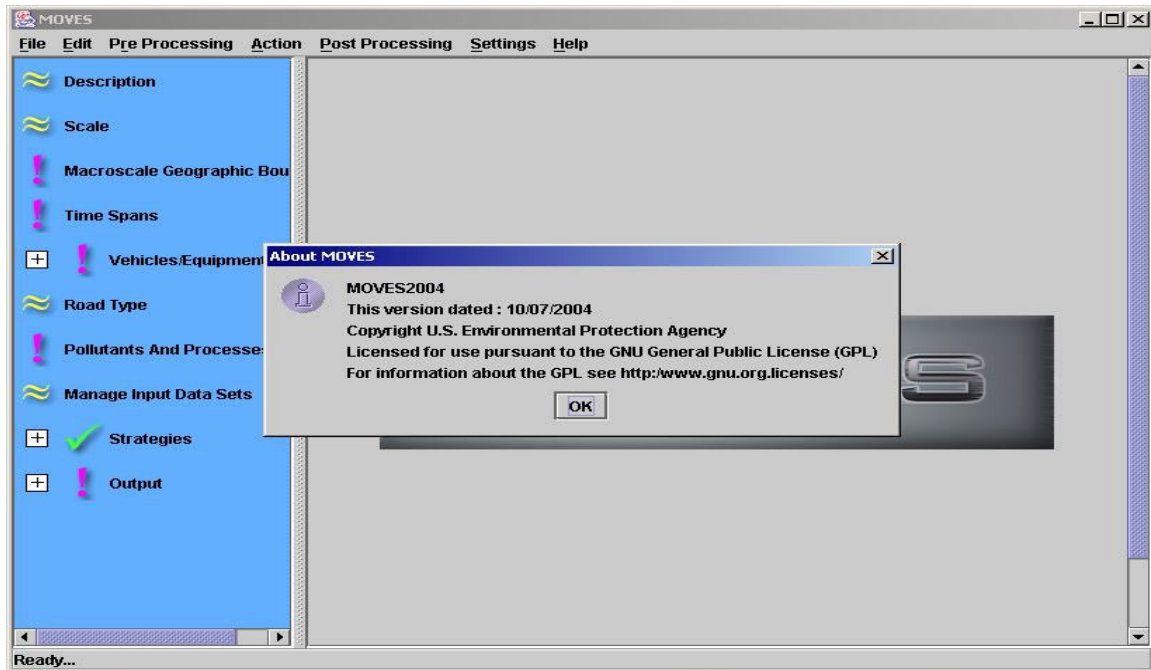
Figure 22. This illustrates the shortcut dialog icons which were installed by the installation program. They enable a graphical method of starting the MOVESWorker and MOVESMaster programs. There is also an icon which allows the programs to be uninstalled.

IV. Running the MOVES2004 model

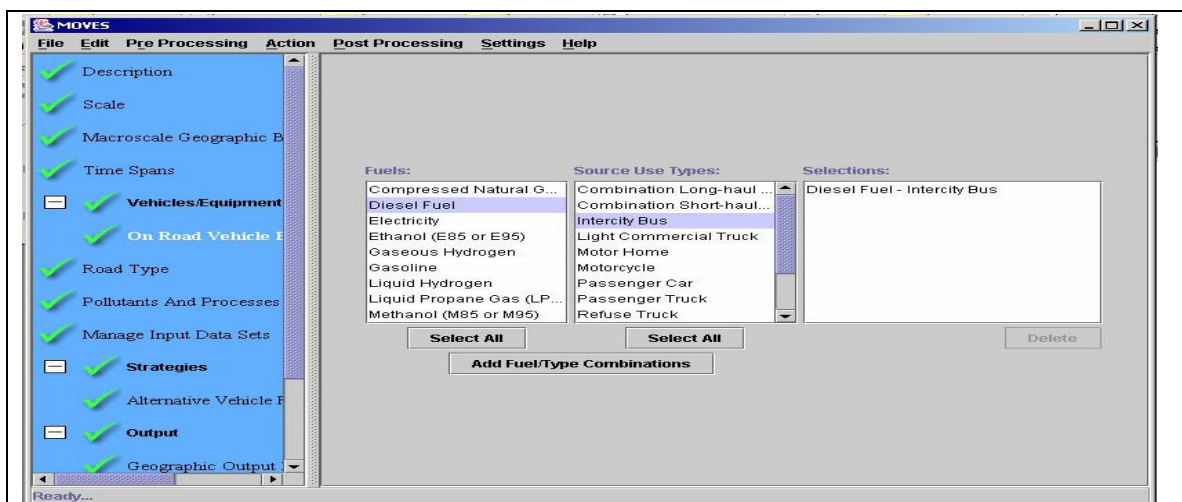
Note: MOVES2004 does NOT provide default energy and emission rates required to model calendar years 2001 and later; in order to produce meaningful results for these years, the user is required to generate these rates using the Future Emission Rate Creator (FERC) as discussed in Section 2 of the MOVES User's Guide.

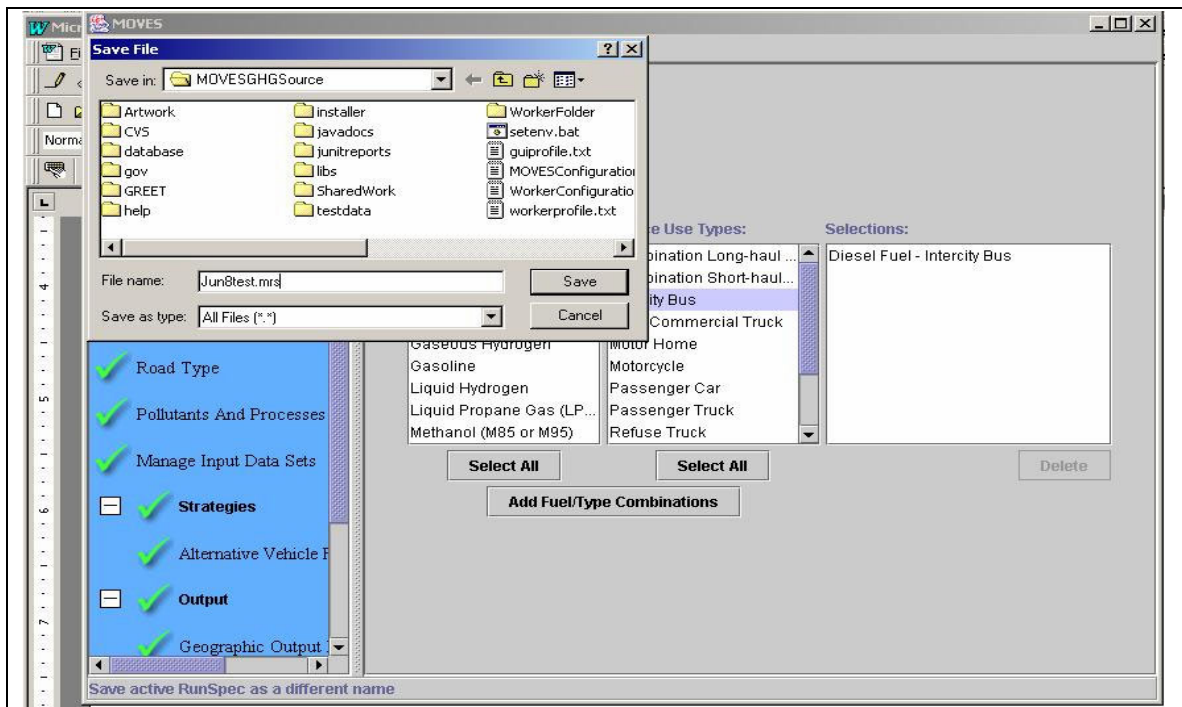
- 1.) If installation of the MOVES2004 source code was successful, try to run the MOVES program. First simply "double click" on the "**MOVESMaster**" icon shown in Figure 23 above. First a DOS window will appear and then after a few seconds the MOVES window should appear next. Click the "o.k." button in the "About MOVES" dialog box to start using the MOVES program.



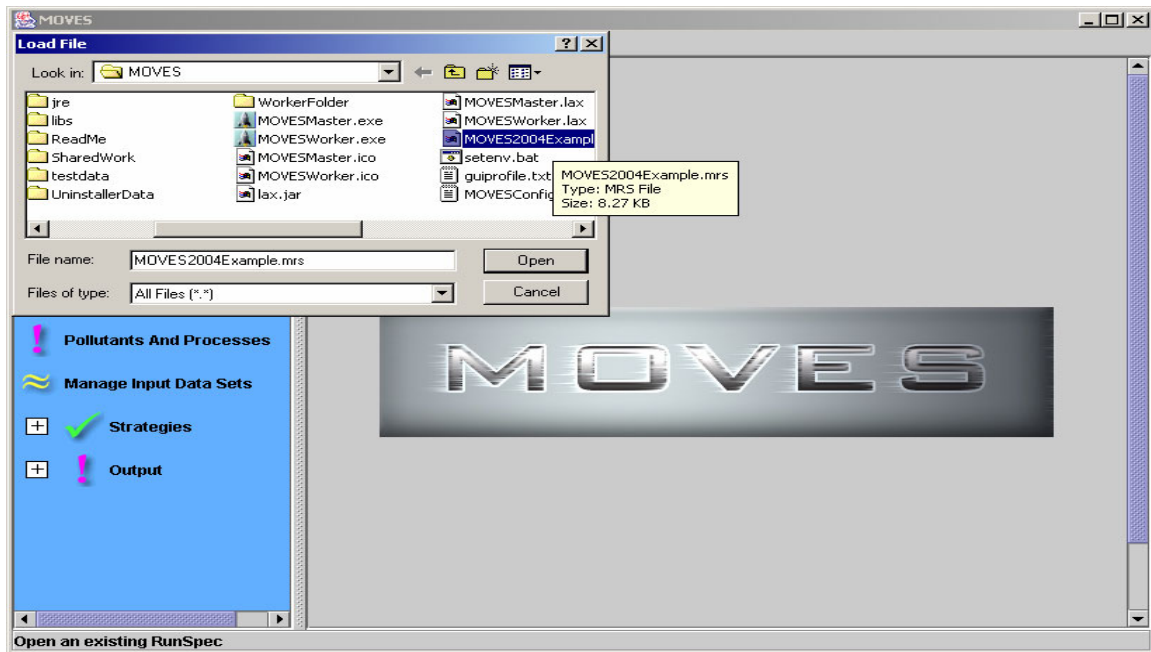
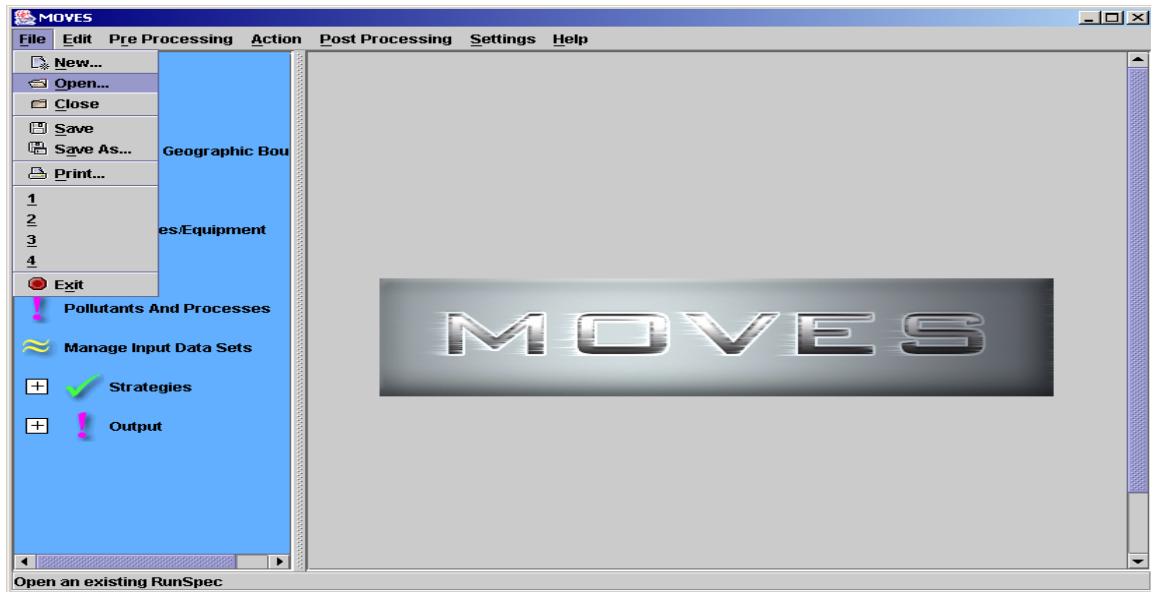


- 2.) From the different menu items select run options such that all of the exclamation marks become check marks. So, that you don't lose your input selections, use the "**F**ile" drop down menu to save this "run specification" or "runspec" to a file. Be sure to create an output database in the "General Output" dialogue. This database needs to be created before a run can be started. Step 5 below illustrates this General Output dialogue box).

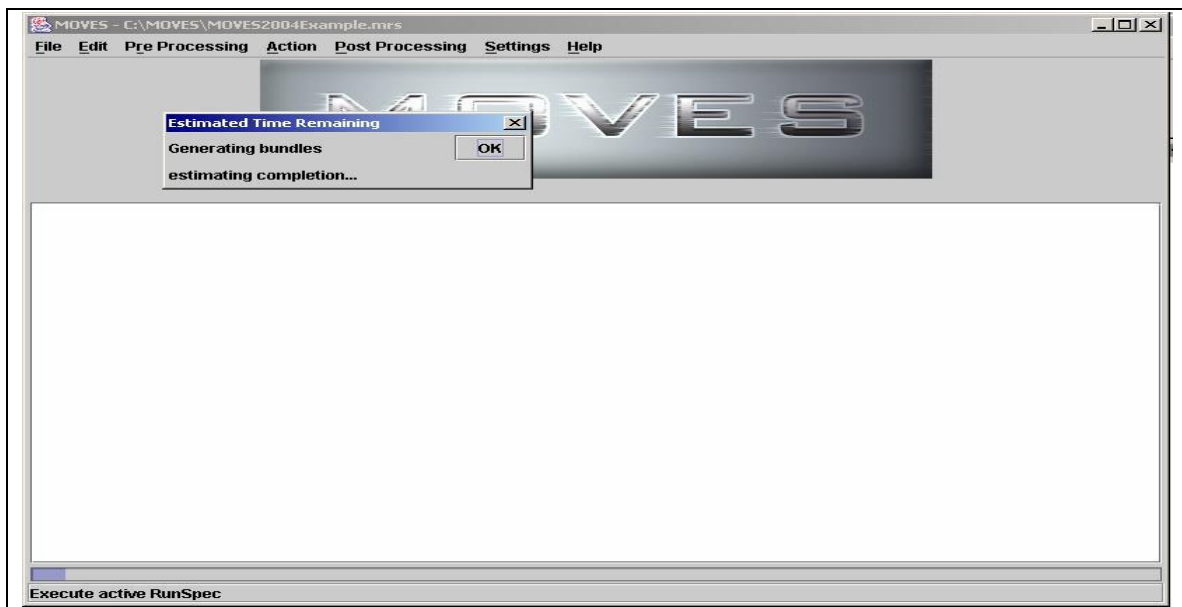
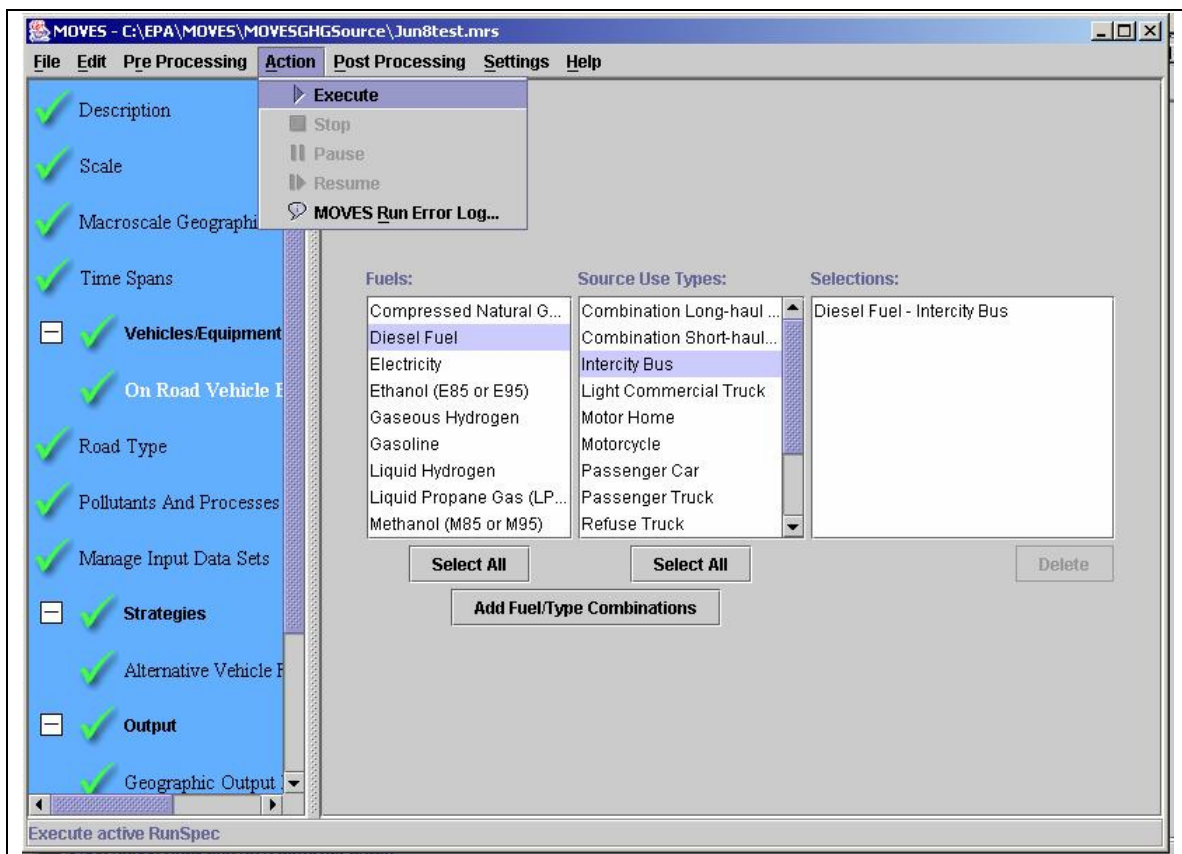




- 3.) Alternatively, as an example, there is a sample runspec in the MOVES installation directory which can be used to automatically load a runspec. It can be loaded by using the “**Open**” option in the “**File**” drop down menu. Again, be sure to create an output database in the “General Output” dialogue. This database needs to be created before a run can be started. Step 5 below illustrates this General Output dialogue box).



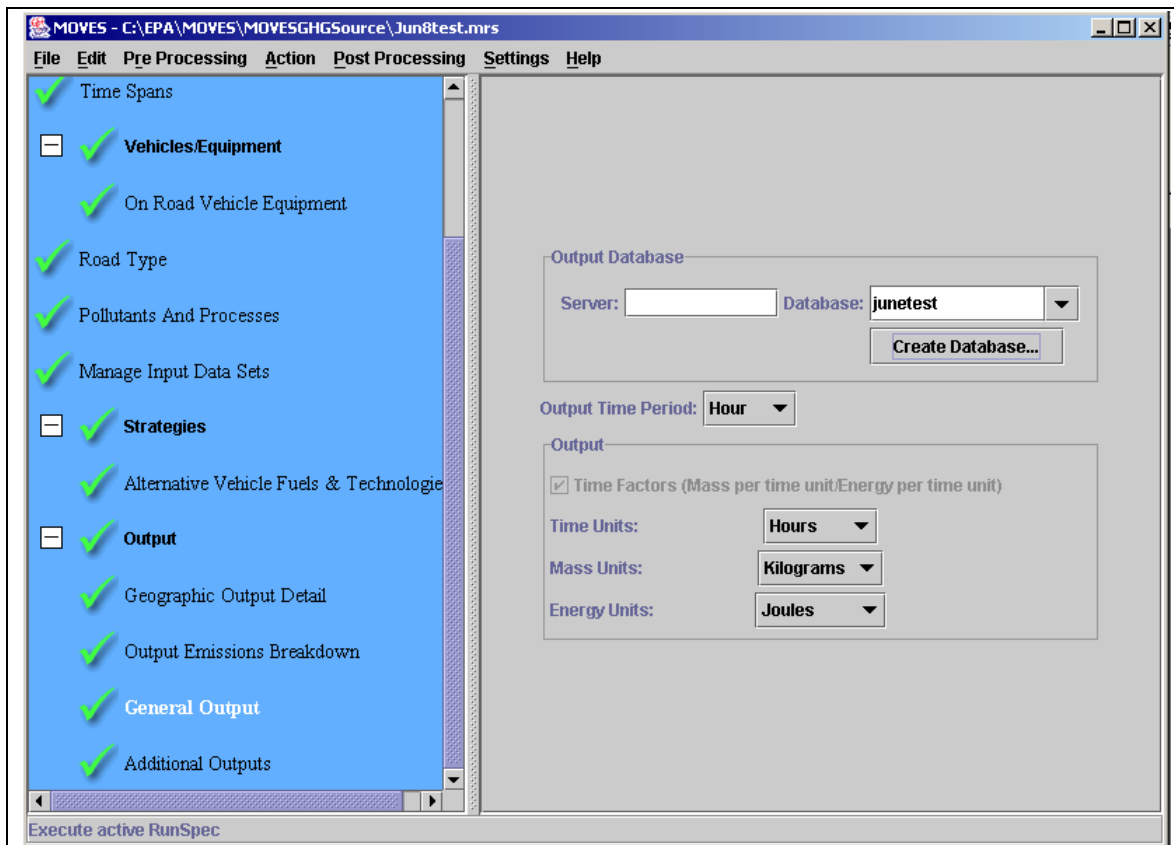
- 4.) Then use the “**Action**” drop down menu to start a MOVES run.
 [Note: Your first attempt at this may result in a few error messages because some items in the newly created databases (see MOVESExecution and MOVESWorker subdirectories in the c:\mysql\data directory) need to be populated.]



- 5.) When the run is completed the results are saved into a MYSQL database formatted set of files located in the directory

“c:\mysql\data\YOUROUTPUTDATABASENAME”

i.e., the name you typed in for the output database in the general output input menu. Recall the “General Output” screen,



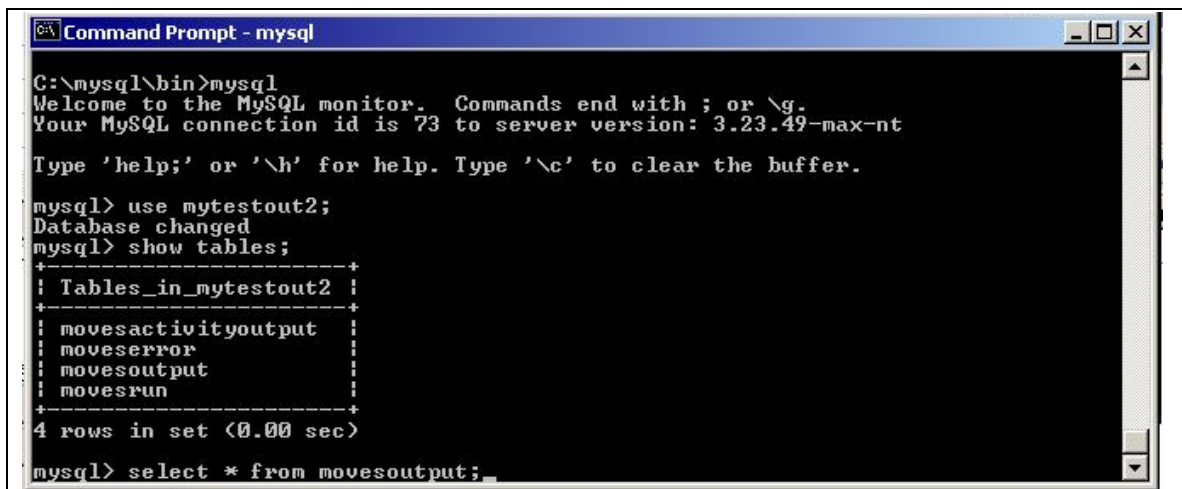
which will have created the directory, “c:\mysql\data\junetest”. (Do not use the database name “test” because this is reserved by the MYSQL program.) The output data in this directory will contain files accessible with mysql commands run in a DOS window (see the MYSQL manual, “MYSQLmanual.pdf”, in the “mysql” folder on the CD) or by using the *optional* MySQL Control Center client. The MYSQL control center install program, **mysqlcc-0.9.4-win32.zip**, is on the MOVES installation disk or downloadable from

<http://www.mysql.com/downloads/mysqlcc.html>

More detailed notes on the MySQL Control Center program are in Section V. Also, if the *optional* MySQL ODBC driver is installed (**MyODBC-3.51.06.exe**), either Microsoft Foxpro or Access can be used to examine the output. More detailed information about the Microsoft ACCESS and ODBC is contained in the file,

“MySQL-ACCESSmdbODBCandExcel.doc”,
on the MOVES2004 installation CD in the “mysql” folder.

- 6.) A quick check using MYSQL SQL commands from a DOS window to see that the MOVES2004 program produced results in the output database can be determined by following the steps shown in the figure below. This last command, “**select * from movesoutput**”, will scroll through the emissions results table named “**movesoutput**”.



```
C:\mysql\bin>mysql
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 73 to server version: 3.23.49-max-nt
Type 'help;' or '\h' for help. Type '\c' to clear the buffer.

mysql> use mytestout2;
Database changed
mysql> show tables;
+-----+
| Tables_in_mytestout2 |
+-----+
| movesactivityoutput  |
| moveserror           |
| movesoutput          |
| movesrun             |
+-----+
4 rows in set (0.00 sec)

mysql> select * from movesoutput;
```

V. Miscellaneous MOVES2004 Installation Notes

A. Java Installation Notes

Installing MOVES2004 requires installing Sun Microsystems' Java SDK 1.3.1_02. However, this MOVES2004 Java installation will not become the default version of the Java runtime environment used by the your computer. Sun's Java web site

`"http://java.sun.com/j2se/1.4.2/runtime_win32.html"`

discusses the details of how and where the executables which run the Java application are installed in the standard typical Java SDK installation packages distributed by Sun Microsystems. The installation package used by the MOVES installation program does not use the standard Sun Java installation and does not overwrite the version of Java which may have previously been installed on your computer.

In particular, Sun's standard Java installation package installs the programs, java.exe and javaw.exe, which run Java applications, in two different places. One is in the "bin" folder or sub-directory of the main Java installation package, e.g., "C:\j2sdk1.4.2_04\bin" and the second is in the Microsoft Windows system directory, e.g., "C:\WINNT\system32" for windows 2000. This latter directory is in the windows default directory path. So, after installing Java SDK using Sun's standard installation program, the default Java run time executable is the one in this system directory. However, the MOVES2004 installation program does not put additional copies of the programs, java.exe and javaw.exe, in the Windows system directory mentioned above. It places them only in the "...j2sdk1.4.2_04\bin" directory. Moreover, the MOVES2004 installation of Java will not change the Windows registry entries for Java, whereas Sun's installation program does. The MOVES installation program places the Java programs and libraries needed to run only in those directories chosen when the MOVES2004 program is run. MOVES2004 then uses these installed Java programs and libraries via the settings which are contained in the files "setenv.bat", "MOVESConfiguration.txt", and "WorkerConfiguration.txt". These three files are also edited by the installation program to conform to the current/at-hand installation and then copied to the user selected installation directory.

B. MySQL Control Center Notes

MySQL Control Center (also known as MySQLCC) is a platform-independent GUI administration client for the MySQL database server. It is installed using an installation program, setup.exe, which is contained in the zip file, mysqlcc-0.9.4-win32.zip. The latest version can be obtained from the official website

`"http://www.mysql.com/products/mysqlcc/"`.

Otherwise, the above mentioned 0.9.4 version is contained on the MOVES2004 installation CD in the “mysql” directory.

To install MySQLCC, simply extract the contents of the zip file to a (temporary) directory, double click on the setup.exe file, and then follow the instructions given in the setup program dialogs.