

## Kepler - Bug #3233

### finalize ptolemy matlab actor for 1.0 release

04/17/2008 04:44 PM - Daniel Crawl

<b>Status:</b>	Resolved	<b>Start date:</b>	04/17/2008
<b>Priority:</b>	Normal	<b>Due date:</b>	
<b>Assignee:</b>	Daniel Crawl	<b>% Done:</b>	0%
<b>Category:</b>	actors	<b>Estimated time:</b>	0.00 hour
<b>Target version:</b>	1.0.0	<b>Spent time:</b>	0.00 hour
<b>Bugzilla-Id:</b>	3233		

#### Description

For 1.0 release, we decided to use the Ptolemy matlab actor. The following needs to be done:

- use TextArea for expression
- check documentation
- add demo workflows
- compile and check-in ptmatlab lib for all platforms

#### History

##### #1 - 04/20/2008 03:43 PM - Daniel Crawl

I updated the KAR file to use TextStyle for the expression parameter, but the KAR parser ignores it. (If I add the same XML for a TextStyle attribute to a workflow containing the actor, it works). So ptolemy.matlab.Expression needs attached patch.

##### #2 - 04/20/2008 03:47 PM - Daniel Crawl

UtilityFunctions.loadLibrary() fails to find the jni library on Linux. Please apply the attached patch.

##### #3 - 04/20/2008 03:52 PM - Daniel Crawl

Once the patches in comments [#1](#) and [#2](#) have been applied, this bug can be closed.

##### #4 - 04/22/2008 05:07 PM - Christopher Brooks

I'm just back from running a workshop yesterday.  
I can patch these on Wed, 4/23, so I'm taking this bug. I'll reassign the bug when I'm done.

However, there is some instability with the Matlab interface and with JNI in general. Under Cygwin, it is best if a C program launches Java if Java is to use JNI with gcc. See [\\$PTII/jni/package.htm](#)

So, under Windows, there are two ptmatlab.dll files, one compiled with Cygwin and one compiled with MSVC.

I'd like to spend some time and make sure Matlab actually works.

##### #5 - 04/23/2008 03:37 PM - Christopher Brooks

I replaced the kepler/lib/ptmatlab.dll with the \$PTII/lib/ptmatlab.dll\_msvc because the previous ptmatlab.dll gave me the following when I tried to run the MatlabExpression demo.

ptolemy.kernel.util.IllegalAccessException: There was a problem invoking the Ptolemy II Matlab interface.

The interface has been tested under Windows and Linux.

The interface requires that Matlab be installed on the local machine and that the ptmatlab shared library available.

Refer to [\\$PTII/ptolemy/matlab/makefile](#) for more information.

in .MatlabExpression.MatlabExpression

Because:

Did not find 'ptolemy/matlab/ptmatlab' in path, searched user.home (c:\cxh\src\kepler) user.dir (C:\Documents and Settings\cxh) and the classpath for 'ptolemy/matlab/ptmatlab.dll', but that was not found either.

The Java classpath was:

c:\cxh\src\kepler\build\classes;c:\cxh\src\kepler\build\src;c:\cxh\src\kepler;c:\cxh\src\kepler\configs;c:\cxh\src\kepler\lib;c:\cxh\src\kepler\lib\images;c:\cxh\src\kepler\build\kepler-icons.jar;c:\cxh\ptII\lib\diva.jar;c:\cxh\ptII\build\ptolemy-doc.jar;c:\cxh\ptII\build\classes;c:\cxh\ptII\build\src

In addition, loadLibrary("ptmatlab") was called, the exception for the loadLibrary() call was: java.lang.UnsatisfiedLinkError:

C:\WINDOWS\system32\ptmatlab.dll: Can't load this .dll (machine code=0x701) on a IA 32-bit platform

```

at ptolemy.matlab.Expression.preinitialize(Expression.java:205)
at ptolemy.actor.Director.preinitialize(Director.java:865)
at ptolemy.domains.sdf.kernel.SDFDirector.preinitialize(SDFDirector.java:527)
at ptolemy.actor.CompositeActor.preinitialize(CompositeActor.java:1103)
at ptolemy.actor.Manager.preinitializeAndResolveTypes(Manager.java:913)
at ptolemy.actor.Manager.initialize(Manager.java:578)
at ptolemy.actor.Manager.execute(Manager.java:321)
at ptolemy.actor.Manager.run(Manager.java:1071)
at ptolemy.actor.Manager$3.run(Manager.java:1112)
Caused by: java.lang.UnsatisfiedLinkError: Did not find 'ptolemy/matlab/ptmatlab' in path, searched user.home (c:\cxh\src\kepler) user.dir
(C:\Documents and Settings\cxh) and the classpath for 'ptolemy/matlab/ptmatlab.dll', but that was not found either.
The Java classpath was:
c:\cxh\src\kepler\build\classes;c:\cxh\src\kepler\build\src;c:\cxh\src\kepler;c:\cxh\src\kepler\configs;c:\cxh\src\kepler\lib;c:\cxh\src\kepler\lib\images;c:\c
xh\src\kepler\build\kepler-icons.jar;c:\cxh\ptl\lib\diva.jar;c:\cxh\ptl\build\ptolemy-doc.jar;c:\cxh\ptl\build\classes;c:\cxh\ptl\build\src
In addition, loadLibrary("ptmatlab") was called, the exception for the loadLibrary() call was: java.lang.UnsatisfiedLinkError:
C:\WINDOWS\system32\ptmatlab.dll: Can't load this .dll (machine code=0x701) on a IA 32-bit platform
at ptolemy.data.expr.UtilityFunctions.loadLibrary(UtilityFunctions.java:923)
at ptolemy.matlab.Engine.<clinit>(Engine.java:176)
at ptolemy.matlab.Expression.preinitialize(Expression.java:202)
... 8 more
Caused by: java.lang.UnsatisfiedLinkError: Expecting an absolute path of the library: ptolemy/matlab/ptmatlab
at java.lang.Runtime.load0(Runtime.java:767)
at java.lang.System.load(System.java:1005)
at ptolemy.data.expr.UtilityFunctions.loadLibrary(UtilityFunctions.java:807)
... 10 more
Caused by: java.lang.UnsatisfiedLinkError: Did not find 'ptolemy/matlab/ptmatlab' in path, searched user.home (c:\cxh\src\kepler) user.dir
(C:\Documents and Settings\cxh) and the classpath for 'ptolemy/matlab/ptmatlab.dll', but that was not found either.
The Java classpath was:
c:\cxh\src\kepler\build\classes;c:\cxh\src\kepler\build\src;c:\cxh\src\kepler;c:\cxh\src\kepler\configs;c:\cxh\src\kepler\lib;c:\cxh\src\kepler\lib\images;c:\c
xh\src\kepler\build\kepler-icons.jar;c:\cxh\ptl\lib\diva.jar;c:\cxh\ptl\build\ptolemy-doc.jar;c:\cxh\ptl\build\classes;c:\cxh\ptl\build\src
In addition, loadLibrary("ptmatlab") was called, the exception for the loadLibrary() call was: java.lang.UnsatisfiedLinkError:
C:\WINDOWS\system32\ptmatlab.dll: Can't load this .dll (machine code=0x701) on a IA 32-bit platform
at ptolemy.data.expr.UtilityFunctions.loadLibrary(UtilityFunctions.java:923)
at ptolemy.matlab.Engine.<clinit>(Engine.java:176)
at ptolemy.matlab.Expression.preinitialize(Expression.java:202)
at ptolemy.actor.Director.preinitialize(Director.java:865)
at ptolemy.domains.sdf.kernel.SDFDirector.preinitialize(SDFDirector.java:527)
at ptolemy.actor.CompositeActor.preinitialize(CompositeActor.java:1103)
at ptolemy.actor.Manager.preinitializeAndResolveTypes(Manager.java:913)
at ptolemy.actor.Manager.initialize(Manager.java:578)
at ptolemy.actor.Manager.execute(Manager.java:321)
at ptolemy.actor.Manager.run(Manager.java:1071)
at ptolemy.actor.Manager$3.run(Manager.java:1112)
Caused by: java.lang.UnsatisfiedLinkError: Expecting an absolute path of the library: ptolemy/matlab/ptmatlab
at java.lang.Runtime.load0(Runtime.java:767)
at java.lang.System.load(System.java:1005)
at ptolemy.data.expr.UtilityFunctions.loadLibrary(UtilityFunctions.java:807)
... 10 more

```

I also updated the demo to include a little more info about JNI.  
I also updated build.xml so that kepler.sh works under Cygwin

The one remaining thing is that kepler/lib/ptmatlab.dll has the wrong permissions, it needs to be changed to executable.

```

cxh@DOPLAP35 ~/src/kepler-1.0.0
$ rm lib/ptmatlab.dll

```

```

cxh@DOPLAP35 ~/src/kepler-1.0.0
$ cvs update lib/ptmatlab.dll
cvs update: warning: lib/ptmatlab.dll was lost
U lib/ptmatlab.dll

```

```

cxh@DOPLAP35 ~/src/kepler-1.0.0
$ ls lib/ptmatlab.dll
-rw-r--r- 1 cxh Administrators 53356 Apr 23 15:31 lib/ptmatlab.dll

```

```

cxh@DOPLAP35 ~/src/kepler-1.0.0

```

The solution is to log on to the CVS server and do  
chmod a+x lib/ptmatlab.dll.

I suggest fixing the permissions for the java and other files in the cvs repository

```
chmod -R a+rX .
find . -name "*.dll,v" -exec chmod a-x {} \;
find . -name "*.java,v" -exec chmod a-x {} \;
find . -name "*.htm,v" -exec chmod a-x {} \;
find . -name "*.html,v" -exec chmod a-x {} \;
find . -name "*.makefile,v" -exec chmod a-x {} \;
find . -name "*.tcl,v" -exec chmod a-x {} \;
find . -name "*.xml,v" -exec chmod a-x {} \;
```

I'm assigning this to Chad because either he can access the CVS repository and make kepler/lib/ptmatlab.dll executable, or he knows someone who can.

Once the permissions on ptmatlab.dll are changed, this bug can be closed.

**#6 - 04/23/2008 04:00 PM - Daniel Crawl**

FYI, I had no problems with ptmatlab.dll on cygwin.

Was your c:\windows\system32\ptmatlab.dll was the same version from Kepler CVS?

**#7 - 04/24/2008 12:11 PM - Chad Berkley**

I updated the repository so that ptmatlab.dll is executable. I'm moving Christopher's other suggestions for permission changes to a new bug.

**#8 - 04/24/2008 12:22 PM - Christopher Brooks**

I'm not sure what's up with c:/Windows/System32/ptmatlab.dll.

The file I have is

```
$ ls -l c:/Windows/System32/ptmatlab.dll
-rwxrwxrwx 1 cxh Administrators 53248 Apr 23 15:24
c:/Windows/System32/ptmatlab.
dll
```

It was the same as the one that was checked in at 1.1 of ptmatlab.dll. However, running the Kepler MatlabExpression.xml demo caused Kepler to hang during the load of ptmatlab.dll for me when Kepler was invoked under Cygwin (via kepler.sh). I also had errors under DOS with Kepler.bat.

Concerning cygwin, it matters how recent cygwin and gcc are. Newer versions cause problems, older versions work. See \$PTII/jni/package.html. I'll include the output of cygcheck -s as an attachment.

Does the current ptmatlab.dll work for you?

BTW - any idea why c:/Windows/System32/ptmatlab.dll exists?

I think it shows up during the loadLibrary() call by Java, but I have not looked into it. In general, I feel it is *very* poor that any dlls end up in c:/Windows/System32. It is poor because it is a security hole, it is poor because it means that multiple users can't share a machine. I guess this is a Windows/Java botch.

BTW - The version that was in CVS was much smaller.

Also, it looks like ptmatlab.dll was not checked in with -kb, so it could get corrupted.

```
$ cvs status ptmatlab.dll =====
File: ptmatlab.dll      Status: Up-to-date
```

```
Working revision:      1.2
Repository revision:  1.2      /cvs/kepler/lib/ptmatlab.dll,v
Sticky Tag:            (none)
Sticky Date:          (none)
Sticky Options:       (none)
```

Compare this with garp.dll

```
$ cvs status garp.dll =====
File: garp.dll         Status: Up-to-date
```

```
Working revision:      1.2
Repository revision:  1.2      /cvs/kepler/lib/garp.dll,v
Sticky Tag:            (none)
Sticky Date:          (none)
```

**#9 - 04/24/2008 12:23 PM - Christopher Brooks**

This is the cygcheck -s output from my machine.

**#10 - 04/24/2008 12:43 PM - Christopher Brooks**

I fixed the cvs -kb problem of ptmatlab.dll in the devel head and release branch.

**#11 - 04/24/2008 02:50 PM - Daniel Crawl**

Sorry, I forgot to add -kb. I added it to the linux and mac versions.

The current ptmatlab.dll works for me, both in windows and cygwin.

I agree that putting libraries into /windows/system32/ is bad.  
Anyone know when \$KEPLER/lib/cplibs.bat is executed? Can we remove it?

**#12 - 04/24/2008 03:04 PM - Chad Berkley**

cplibs.bat/sh is run by the installer. If it doesn't run, the libraries for the gdal stuff don't work. I'm open to suggestions for making it work without copying files to system32.

**#13 - 04/24/2008 11:50 PM - Christopher Brooks**

I'm closing the Matlab bug because I opened bug# 3242  
"dlls should not go in c:/Windows/System32"

**#14 - 03/27/2013 02:22 PM - Redmine Admin**

Original Bugzilla ID was 3233

**Files**

Expression.diff	345 Bytes	04/20/2008	Daniel Crawl
UtilityFunctions-diff	567 Bytes	04/20/2008	Daniel Crawl
cygcheck-cxh.txt	10.5 KB	04/24/2008	Christopher Brooks