

## Kepler - Bug #3471

### custom input boxes in actor configuration dialog

08/15/2008 09:06 AM - Matt Jones

<b>Status:</b>	Resolved	<b>Start date:</b>	08/15/2008
<b>Priority:</b>	Normal	<b>Due date:</b>	
<b>Assignee:</b>	Christopher Brooks	<b>% Done:</b>	0%
<b>Category:</b>	interface	<b>Estimated time:</b>	0.00 hour
<b>Target version:</b>	1.1.0	<b>Spent time:</b>	0.00 hour
<b>Bugzilla-Id:</b>	3471		

#### Description

Report from Peter Reutemann:

I've encountered a similar problem as mentioned in the following thread:

[http://groups.google.com/group/comp.soft-sys.ptolemy/browse\\_thread/thread/dc4c136eb6870d10/75e79a2afd7cc9ab](http://groups.google.com/group/comp.soft-sys.ptolemy/browse_thread/thread/dc4c136eb6870d10/75e79a2afd7cc9ab)

Though using Kepler, I needed to modify the underlying Ptolemy framework in order to allow custom input boxes in actor dialogs. But instead of hacking the `ptolemy.gui.Query` and `ptolemy.actor.gui.PtolemyQuery` classes whenever I'd need another custom query box, I modified those two classes (and added classes/interfaces) to make it a bit more flexible.

In order to get a new query box into Ptolemy, you need to modify the following places:

- `ptolemy.gui.Query`
  - ~ `set(String,String)`
  - ~ `getStringValue(String)`

in those two methods the type of custom query chooser, e.g., `QueryColorChooser` is used to determine how to obtain/set the string representation.

- `ptolemy.actor.gui.PtolemyQuery`
  - ~ `addStyledEntry(Settable)`

here the type of `Parameter` defines what query chooser is added for the attribute, e.g., a `QueryColorChooser` in case of a `ColorAttribute`.

To decouple this a bit, I've come up with an interface called "CustomQueryBoxParameter", to be implemented by types derived from `Parameter` that need a custom query box. The interface consists of only one method:

```
javax.swing.Box createQueryBox(PtolemyQuery query, Settable att)
```

This method returns a custom query box (fully configured), based on the current query and attribute this query belongs to. This swing element contains all the necessary logic to manipulate the data, e.g., a button for popping up another dialog, etc. The `addStyledEntry` method of the `PtolemyQuery` class obtains a box from an attribute implementing `CustomQueryBoxParameter` and attaches it (via the `_addPair` method).

The query box being returned, is a custom class derived from `javax.swing.Box`, which implements another interface called "SettableQueryChooser". This interface is used in the `set/getStringValue` methods of `ptolemy.gui.Query` to set/get the current string value. The actual query chooser class turns that into whatever internal representation it uses. This interface avoids having to add new logic to the `Query` class, whenever a new custom `QueryChooser` is implemented.

Since I'm apparently not the only user who encountered this problem,

I'd like to contribute my code (which will hopefully trickle down to Kepler at one stage, in case it gets accepted). Not exactly sure how contributions work around here.

Note: my original post **with** attachments didn't come through apparently (never showed up in the Google group), you can find my original post including the attachments on my homepage:  
[http://www.scms.waikato.ac.nz/~fracpete/downloads/ptolemy/custom\\_query\\_boxes/](http://www.scms.waikato.ac.nz/~fracpete/downloads/ptolemy/custom_query_boxes/)

There are several files available for download from this web page:

- ptolemy-patch.zip

contains patches for the Query/PtolemyQuery classes  
(run against subversion repository August 14, 2008)

- ptolemy-additional\_classes.zip

additional classes/interfaces necessary for my proposed changes

- examples-classes.zip

contains a simple actor that uses a custom query box with a button that pops up a JOptionPane for the user to enter some text; this is just to demonstrate how the slightly modified framework would work

- examples.kar

a kepler archive - I know, this is not exactly the right place, but I thought some Kepler people/developers read this mailing list as well and might be interested in this

Hopefully, my ramblings made some sense, otherwise the code hopefully speaks for itself. ;-)

## History

### #1 - 08/15/2008 11:45 AM - Christopher Brooks

I folded the Ptolemy changes in to the Ptolemy Tree.

One issue is that one of the files in the example code from

[http://www.scms.waikato.ac.nz/~fracpete/downloads/ptolemy/custom\\_query\\_boxes/examples-classes.zip](http://www.scms.waikato.ac.nz/~fracpete/downloads/ptolemy/custom_query_boxes/examples-classes.zip)

need to be in ptolemy.actor.gui

I tried to put QueryInputDialogChooser into ptolemy/actor/gui/test, but compilation fails because that class uses some package protected inner classes in ptolemy.actor.gui.

```
CLASSPATH="../../../../usr/bin/javac" -g -O InputDialogParameter.java
```

```
../../../../ptolemy/actor/gui/test/QueryInputDialogChooser.java:116: ptolemy.gui.Query.QueryActionListener is not public in ptolemy.gui.Query; cannot be accessed from outside package
```

```
_entryBox.addActionListener(_owner.new QueryActionListener(name));
```

```
^
```

```
../../../../ptolemy/actor/gui/test/QueryInputDialogChooser.java:129: ptolemy.gui.Query.QueryFocusListener is not public in ptolemy.gui.Query; cannot be accessed from outside package
```

```
_entryBox.addFocusListener(_owner.new QueryFocusListener(name));
```

```
^
```

```
../../../../ptolemy/actor/gui/test/QueryInputDialogChooser.java:139: _notifyListeners(java.lang.String) is not public in ptolemy.gui.Query; cannot be accessed from outside package
```

```
_owner._notifyListeners(_name);
```

The obvious thing is to make the package protected code non-package protected.

There are probably other, more elegant solutions though.

### #2 - 09/19/2008 03:23 PM - Christopher Brooks

There is more to the thread at

[http://groups.google.com/group/comp.soft-sys.ptolemy/browse\\_thread/thread/27600a8a04d9deeb#](http://groups.google.com/group/comp.soft-sys.ptolemy/browse_thread/thread/27600a8a04d9deeb#)

One issue is that data.expr.CustomQueryBoxParameter imports ptolemy.actor.gui and thus means that data.expr depends on actor.gui.

On August 15, I folded changes in:

2008-08-15 18:40 cxh

- [r50436] /trunk/ptolemy/actor/gui/PtolemyQuery.java,  
/trunk/ptolemy/data/expr/CustomQueryBoxParameter.java,  
/trunk/ptolemy/data/expr/makefile, /trunk/ptolemy/gui/Query.java,  
/trunk/ptolemy/gui/QueryChooserHelper.java,

/trunk/ptolemy/gui/SettableQueryChooser.java,  
/trunk/ptolemy/gui/makefile: Peter Reutemann: Custom query boxes  
in Kepler/Ptolemy. See [http://www.scms.waikato.ac.nz/~fracpete/downloads/ptolemy/custom\\_query\\_boxes/](http://www.scms.waikato.ac.nz/~fracpete/downloads/ptolemy/custom_query_boxes/)

On August 16, Edward pointed out:

There is no need to modify the underlying framework to do this. Just put a subclass of `ptolemy.actor.gui.ParameterEditorStyle` (an attribute) inside the attribute that you want a custom input box for. Your subclass can implement that custom input box, and it will automatically appear in the query box. This is how the style preferences currently there are implemented.

On August 16, Peter responded with

Taking the `FileChooserStyle` as example: it calls the public `addFileChooser` method of the `Query` class in order to be able to add the `JLabel` and the `QueryFileChooser` box via the protected `_addPair` method. Unless I'm willing to modify the `Query` class (adding another public `addXYZ` method), I'm not able to add my own custom box outside the `ptolemy.gui` package, right? And wouldn't it be also necessary to add my own style class to the `_parameterStyles` member of the `ptolemy.actor.gui.style.StyleConfigurer`?

On August 17, Peter wrote:

--start--  
[Edward wrote:]

I guess the right solution would be to add a public method like `addPair()`, which would use `_addPair()`, but this would be tricky to get right. In particular, `_addPair()` populates the `_entries` hashtable with objects, and I'm not sure what would be the right sort of object to provide for a completely custom entry... There might be other gotcha's as well.

Unfortunately, I don't have bandwidth for this sort of thing right now, but if you want to take a stab at modifying the `Query` class, I would be happy to take a look...

I had another go at the `ptolemy.gui.Query` class and my previous modifications, once again based on today's subversion repository. See link at end of post for downloads.

This post is also in response to Christopher's feedback:  
<http://mercury.nceas.ucsb.edu/eoinformatics/pipermail/kepler-dev/200...>

Here are the additional modifications:

- All inner classes of `ptolemy.gui.Query` are now public and static, in case one needs to use, e.g., a `QueryActionListener` in a package outside `ptolemy.gui`. They all contain a private member `"_owner"` of type `ptolemy.gui.Query`.

```
--> ptolemy.gui.Query.diff
```

- An additional abstract superclass `ptolemy.gui.QueryChooser` (derived from `javax.swing.Box`) which enables derived classes to call `_addPair` and `_notifyListeners` of the `ptolemy.gui.Query` class, even if they're outside the `ptolemy.gui` package. (the `QueryInputDialogChooser` in the example below is now derived from this class)

```
--> ptolemy-additional_classes.zip
```

- Updated example to demonstrate the changes. This time, there are no classes in the `ptolemy...` package hierarchy anymore. The example contains a simple actor with a parameter consisting of a text field and a button to pop up a dialog for entering a string (which is then displayed in the text field).

```
--> examples.zip (example classes)
    examples.kar (Kepler archive)
```

Files mentioned above are available for download from this link:  
[http://www.scms.waikato.ac.nz/~fracpete/downloads/ptolemy/custom\\_quer...](http://www.scms.waikato.ac.nz/~fracpete/downloads/ptolemy/custom_quer...)

Hopefully, this all makes sense to you... ;-)

Cheers, Peter

--end--

I'm going to try to fold in Peter's second set of changes and see what happens.

**#3 - 09/19/2008 06:17 PM - Christopher Brooks**

I'm closing this one, I checked in Peter's latest code.  
I moved CustomQueryBoxParameter from data.expr to actor.gui  
I added actor/gui/CustomQueryExample.tar.gz which uses Peter's  
example code of how to create a CustomQuery with classes outside of the ptll tree.

**#4 - 03/27/2013 02:23 PM - Redmine Admin**

Original Bugzilla ID was 3471