

Subject: Re: Phil's review of Joe's Unit Converter Qt-port code
From: Phil Weinstein <philip.weinstein@colorado.edu>
Date: Wed, 15 Aug 2007 17:58:18 -0600
To: Bill Oakley <billo@colorado.edu>

Correction on the first note: tabs: "Please reconfigure your editor to put in SPACES".

Phil Weinstein wrote:

Review of Joe's Unit Converter Qt-port code:
/projects/riverware/staff/appegaj/builds/ ...

General Comments

(1) Source code has tab characters in it. Please reconfigure your editor to put in SPACES. For new code, and in general, I prefer indents of three (3) spaces.

(2) Source code should be limited to 80 character lines. (But perhaps this is hard to do in Visual Studio?).

QtGUI/Make.package:

We like to keep file lists in alphabetic order. (New additions were instead added at the end).

QtGUI/UnitConverterDlg.hpp

Following methods should not start with an underscore. They should start with just a lower case letter.

```
void _fromTypeMenu_activated( int );
void _fromUnitNameMenu_activated( int );
void _toUnitNameMenu_activated( int );
void _calculateButton_pressed();
void _doneButton_pressed();
```

They should also be declared as Qt 'slots', that is, instead of preceeding those declarations with: 'protected' they should be preceeded with: 'protected slots', or 'private slots' would be OK too.

Minor. In new code, we don't use '(void)' for a parameterless method declaration or definition. Instead, just use '()'. This applies to these methods:

```
UnitConverterDlg(void);
~UnitConverterDlg(void);
void initListItems(void);
void updateToUnitType(void);
void updateToUnitNames(void);
void updateFromUnitNames(void);
void do_Conversion(void);
void do_Done(void); -----
QtGUI/UnitConverterDlg.cpp
-----
```

(1) File header still refers to module from which this new module was (apparently) copied from.

(2) Use of globals? At a minimum, these two module-level variables are not declared as 'static' (which, in this case would mean strictly local to the module).

```
QStringList fromNameMenuList;
QStringList toNameMenuList;
```

... if their values needed to be maintained internally, they should instead be private instance

variables in the UnitConverterDlg class. But actually, they should be just local (automatic) variables in the methods they are used in -- that is, they are just temporary values.

(3) [Phil's preference] ... in UnitConverterDlg::updateToUnitNames(), I _do_ like use of the intermediate value, as commented out (RWCString selectedTypeTitle) rather than using the source expression in the subsequent, longer expression. Top three reasons: (1) It documents the types of values being handled, and (2) gives you a chance to semantically label the value, i.e. with an identifier name, and (3) much easier to debug, step through.

(4) In void UnitConverterDlg::do_Conversion(), about the statement:
 double fromValue = atof(_fromValueText->text().latin1());

(a) We haven't yet confirmed that the value is a valid 'double'. The widget is a QLineEdit, and it doesn't look like an input mask has been set (i.e. for only digits, sign, decimal point, and maybe 'e' or 'E'). [Checking code from the old GUI implementation is above this line, commented out].

(b) Use instead the QString method, double QString::toDouble (bool* ok = 0) const WITH an 'ok' return parameter, and check that parameter. SEE: <http://doc.trolltech.com/3.3/QString.html#toDouble>

(5) local to this module, define module constants for strings like "365 Days" since we are actually doing comparisons based on widget values set from the same string. I'd suggest something like:

```
static const char* MONTH_DAYS_STR_28 ("28 Days");
static const char* MONTH_DAYS_STR_29 ("29 Days");
static const char* MONTH_DAYS_STR_30 ("30 Days");
static const char* MONTH_DAYS_STR_31 ("31 Days");
static const char* YEAR_DAYS_STR_365 ("365 Days");
static const char* YEAR_DAYS_STR_366 ("366 Days");
```

(6) QComboBox::clear returns a void (i.e. no returned value), so no need for this cast:
 (void) _fromTypeMenu->clear();

```
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QtGUI/UnitConverterDlgBase.ui
-----
```

Design: I'd tighten this dialog box up vertically. The words, "Multiplier" and "To" could be in the leftmost column, right justified. And we wouldn't need the second "Duration for Rates" label. So, two text lines could be removed.
