How to prevent symbol collisions between GTK+ and Qt

Overview

Including GTK+ headers in Qt applications is not straightforward since both frameworks define the symbol "signals" which leads the building process to fail with some error messages. This article explains how to prevent Symbol collisions,

Preconditions

To use GTK+ functions you need one of the following environments:

- Maemo SDK
- Nokia Qt SDK with Maemo target
- Any Linux distro with Qt and GTK+ development files

Code

The following code is a minimal application which includes a GTK+ header.

```
#include <QtCore/QCoreApplication>
#include <gtk/gtk.h>

int main(int argc, char *argv[])
{
    QCoreApplication a(argc, argv);

    return a.exec();
}
```

Since Qt and GTK define the "signals" symbol, the gcc compiler aborts the building process, printing out the following error messages:

```
Running build steps for project gtk...
Configuration unchanged, skipping qmake step.
Starting: "/usr/bin/make" -w
make: Entering directory `/home/gnuton/gtk-build-desktop'
g++ -c -pipe -O2 -pthread -I/usr/include/gtk-2.0 -I/usr/lib/gtk-2.0/include -I/usr/include/atk-1.0 -I/usr/include/cairo -I/usr/inclu
In file included from /usr/include/glib-2.0/gio/gio.h:48,
                 from /usr/include/gtk-2.0/gdk/gdkapplaunchcontext.h:30,
                 from /usr/include/gtk-2.0/gdk/gdk.h:32,
                 from /usr/include/gtk-2.0/gtk/gtk.h:32,
                 from ../gtk/main.cpp:3:
/usr/include/glib-2.0/gio/gdbusintrospection.h:151: error: expected unqualified-id before ‘protected’
/usr/include/glib-2.0/gio/gdbusintrospection.h:151: error: expected ‘;’ before ‘protected’
In file included from /usr/include/gtk-2.0/gtk/gtk.h:48,
                 from ../gtk/main.cpp:3:
/usr/include/gtk-2.0/gtk/gtkbindings.h:78: error: expected unqualified-id before ‘protected’
/usr/include/gtk-2.0/gtk/gtkbindings.h:78: error: expected ‘;’ before ‘protected’
make: *** [main.o] Error 1
make: Leaving directory `/home/gnuton/gtk-build-desktop'
The process "/usr/bin/make" exited with code 2.
Error while building project gtk (target: Desktop)
When executing build step 'Make'
```

To compile the previous code you have to undefine the colliding symbol before including the GTK header.

```
#include <QtCore/QCoreApplication>
#undef signals // Collides with GTK symbols
#include <gtk/gtk.h>
```

Postconditions

You can build successfully Qt applications which make use of GTK+ widgets.

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