Subject: Class method called by keyboard hook callback has an empty "this" pointer
Posted by Mircode on Sun, 23 Sep 2012 09:31:59 GMT
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Hello!

I managed to create a working low level keyboard hook on windows. Now I want to update a label in my GUI everytime something happens.

In order to access my main window class from the hook callback, I created a global variable, which points to this class:

KeyBuddy2* MainWindow;

Inside the constructor I define it

```
KeyBuddy2::KeyBuddy2()
{
 MainWindow=this;
 CtrlLayout(*this, "Window title");
 SetHook();
}
```

Inside the LowLevelKeyboardProc function, I call

MainWindow->ProcessKbdEvent(...)

but inside the ProcessKbdEvent method, "this" does not point to MainWindow. Instead, it is a nullpointer.

I am happy that I found this problem to be the cause of my program crashing all the time... I wanted to access class members from inside this method.

As a workaround, I can write MainWindow->member instead of just member. But still, this should not be necessary. Does anyone know the cause of this behavior?

Greetings,
Mirko

Subject: Re: Class method called by keyboard hook callback has an empty "this" pointer
Posted by dolik.rce on Sun, 23 Sep 2012 10:51:16 GMT
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Hi Mirko,

Welcome to the forum

Mircode wrote on Sun, 23 September 2012 11:31Inside the LowLevelKeyboardProc function, I call

MainWindow->ProcessKbdEvent(...)

but inside the ProcessKbdEvent method, "this" does not point to MainWindow. Instead, it is a nullpointer.

This would most probably happen if MainWindow==null at the time of calling MainWindow->ProcessKbdEvent(). You can add a check for this in LowLevelKeyboardProc to confirm this. I don't know how your code is structured, but I believe that the function is called before any instance of KeyBuddy2 is created or something like that.

Best regards,
Honza

Subject: Re: Class method called by keyboard hook callback has an empty "this" pointer
Posted by Mircode on Sun, 23 Sep 2012 16:45:30 GMT
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Hi, thanks!

You were right, MainWindow was 0. The problem was that I didn't know about the "extern" keyword. Each cpp file hat his own "global" MainWindow variable.

Now it works fine.

Subject: Re: Class method called by keyboard hook callback has an empty "this" pointer
Posted by dolik.rce on Sun, 23 Sep 2012 18:27:58 GMT
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You're welcome. In U++ it is fairly common to use a static variable in global function instead of global variables to prevent all kinds of troubles that global variables cause.

In your case, you can do something like

```
KeyBuddy2* MainWindow() {
    static KeyBuddy2* ptr;
    return ptr;
}
...
KeyBuddy2::KeyBuddy2()
{
 MainWindow()=this;
```

```
 CtrlLayout(*this, "Window title");
 SetHook();
}
...
MainWindow()->ProcessKbdEvent(...)
```

There is even a macro for this: GLOBAL_VAR(type, name), for those that are too lazy to write (Such as me)

Honza

Subject: Re: Class method called by keyboard hook callback has an empty "this" pointer
Posted by Mircode on Mon, 24 Sep 2012 16:25:13 GMT
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Uuh, static you say. That looks cool. I didn't know this concept. I should really read through a c++ book someday.

I bet this was invented by people who used global variables all the time but then they were forbidden to do so because its bad style.

So they came up with something that secretly incorporated the usefulness of globals and looks object oriented to the outside.

Thanks again.

Subject: Re: Class method called by keyboard hook callback has an empty "this" pointer
Posted by nlneilson on Tue, 25 Sep 2012 23:16:30 GMT
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Welcome to the forum.

Mircode wrote on Mon, 24 September 2012 09:25I should really read through a c++ book someday.

I bet this was invented by people who used global variables all the time but then they were forbidden to do so because its bad style.

Global variables are not forbidden. Local variables are safer and takes less memory.

U++ will be good for you to learn C++ but you do need to do some reading to learn the basics and concepts.
