
Subject: Strange Architecture

Posted by [Xemuth](#) on Tue, 16 Jul 2019 10:34:46 GMT

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Hello Everyone,

with friends we are working on a projet made with Upp ! let me quickly explain it :

SmartUppBot is a bot made for discord programmed in C++ using Upp and jjacksonRIAB discord pacakge (<https://www.ultimatepp.org/forums/index.php?t=usrinfo&id=1150&>)

Since we are many to work on and the objective was to learn Upp/C++, I have made a "SmartUppBot" package contening my SmartUppBot class and a mother class named "DiscordModule".

The main idea was, everyone who would like to work on the project would have to made a new package and inherite my mother class on is package. THEN I just have to create an instance of the inherited class and add it to SmartUppBot.

Let me show you :

```
#include <Core/Core.h>
#include "SmartBotUpp.h"

#include <Discord_Overwatch/Discord_Overwatch.h>
#include <EasyConfiguration/EasyConfiguration.h>
#include <Discord_Minecraft/Discord_Minecraft.h>
#include <Discord_RNG/Discord_RNG.h>
#include <GraphBuilder/GraphBuilder.h>
using namespace Upp;
//Module OverWatch : https://github.com/Xemuth/Discord_Overwatch
//Module Minecraft : https://github.com/Xemuth/Discord_Minecraft
//Module RNG : https://github.com/Xemuth/Discord_RNG
//Module GraphBuilder : https://github.com/Xemuth/GraphBuilder
//EasyConfiguration : https://github.com/Xemuth/EasyConfiguration

CONSOLE_APP_MAIN {
  StdLogSetup(LOG_COUT|LOG_FILE);
  EasyConfiguration ez(R"(C:/discordTokens.txt)");
  if(ez.GetCount() >= 2){
    SmartBotUpp mybot(ez.GetValue<String>("BotId"),ez.GetValue<String>("BotToken"));

    Discord_Overwatch ow("OverWatch","ow");
    mybot.AddModule(&ow);

    Discord_Minecraft mc("Minecraft","mc");
    mybot.AddModule(&mc);
```

```
Discord_RNG rng("RNG", "rng");
mybot.AddModule(&rng);

mybot.Launch();
}else{
  LOG( "config file is incorrect !\n");
}
}
```

As you can see every "Discord_****" is a discord module inherited from mother class. Each module have is own discord command defined "!low" ; "!rng" ; "!mc" ... and the bot just loop modules for each message send on Discord.

This architecture work well but every time someone update is module I must recompile everything on Linux and send it to my RaspberryPi.
That's why I was wondering if it was possible to do something like this :

Is it possible to compile modules as Dll (or linux equivalent) and Programme SmartUpBot to allowing it to "hot load" dll located on a file and use it ? if yes. Do this system have a limit ? is it a good way to do "clean" programme ?

Thanks for the time you taken to read this.

Best regard.

Xemuth

Subject: Re: Strange Architecture
Posted by [Novo](#) on Wed, 17 Jul 2019 18:14:26 GMT
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Xemuth wrote on Tue, 16 July 2019 06:34
Is it possible to compile modules as Dll (or linux equivalent) and Programme SmartUpBot to allowing it to "hot load" dll located on a file and use it ? if yes. Do this system have a limit ? is it a good way to do "clean" programme ?

The U++'s way of working with DLLs is this.
It looks like DLLs name should be known at compile time, but you should be able to improve this code if you want to.
In general, DLLs are loaded/unloaded via dlopen/dlclose calls (in Windows these functions have different names).
Useful tool: Dependency Walker.
Besides showing you what is imported/exported it allows you to trace DLL-related calls.
Try to trace any app and you'll have a lot of fun.

You can create DLLs in U++.

U++ itself is not very well suited to be shared among DLLs.
Hint: try to choose "All shared" in "Output mode" and check what will happen.

Hope this helps.

Subject: Re: Strange Architecture
Posted by [Xemuth](#) on Thu, 18 Jul 2019 12:45:28 GMT
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Hello Novo,

Thanks for your response !

I'm happy to figure my idea is maybe possible !

Quote:In general, DLLs are loaded/unloaded via dlopen/dlclose calls (in Windows these functions have different names).

That's mean I can do near the same code between linux and windows ? or dll in windows and linux don't have same architecture ?

Have good day,
Best Regard.

Subject: Re: Strange Architecture
Posted by [Novo](#) on Thu, 18 Jul 2019 14:57:11 GMT
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Xemuth wrote on Thu, 18 July 2019 08:45

That's mean I can do near the same code between linux and windows ? or dll in windows and linux don't have same architecture ?

Linux and Windows have similar architectures.

DLL-related functions have different names, but they do pretty much the same thing.

You just need to write a platform-independent wrapper for them.

This is a trivial task.

DLLs on Windows and Linux behave slightly differently.

Main source of information for you should be man ld.so

Read it carefully.

Other useful apps on Linux: ldd, nm.

Start with man ldd and man nm

Hope this helps.

Subject: Re: Strange Architecture
Posted by [Xemuth](#) on Fri, 19 Jul 2019 10:29:52 GMT

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Hello Novo,

I had try to load a custom dll I made. (used flag DLL)
then define a Dli file. getting the Function name by using Dependency walker :d
and it worked ! :d

but I tried :

Quote:Hint: try to choose "All shared" in "Output mode" and check what will happen.

and just got error :

Creating library...

lld: error: unknown argument: -u

collect2.exe: error: ld returned 1 exit status

There were errors. (0:00.34)

I probably used it wrong. Can you explain me what's for ?

Thanks in advance.

Best regard.

Subject: Re: Strange Architecture

Posted by [Novo](#) on Fri, 19 Jul 2019 15:38:43 GMT

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Xemuth wrote on Fri, 19 July 2019 06:29

I probably used it wrong. Can you explain me what's for ?

It is supposed to compile each U++ package as DLL. This works in Linux. It looks like this doesn't work in Windows.

If you can compile a package as DLL, you can link against this DLL and do not need to include all U++ into you own DLL.

This feature is not supported by U++ very well. This is one of limitations.

Subject: Re: Strange Architecture

Posted by [Xemuth](#) on Fri, 19 Jul 2019 16:12:26 GMT

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Thanks Novo,

you make thing more clear.
