There is more to C

26.11.2013
FI MUNI, Brno

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http://georgik.sinusgear.com

Grab the source code

https://github.com/georgik/fimuni-c-cpp-examples.git

Who am I?

FACULTAS ARTIS INFORMATICÆ
UNIVERSITAS MASARYKIANA

YSOFT

python™

Adobe
COMMUNITY
PROFESSIONAL

Fairy tale of C kingdom

VS 2013 - tools

SDL

Automation Evolved

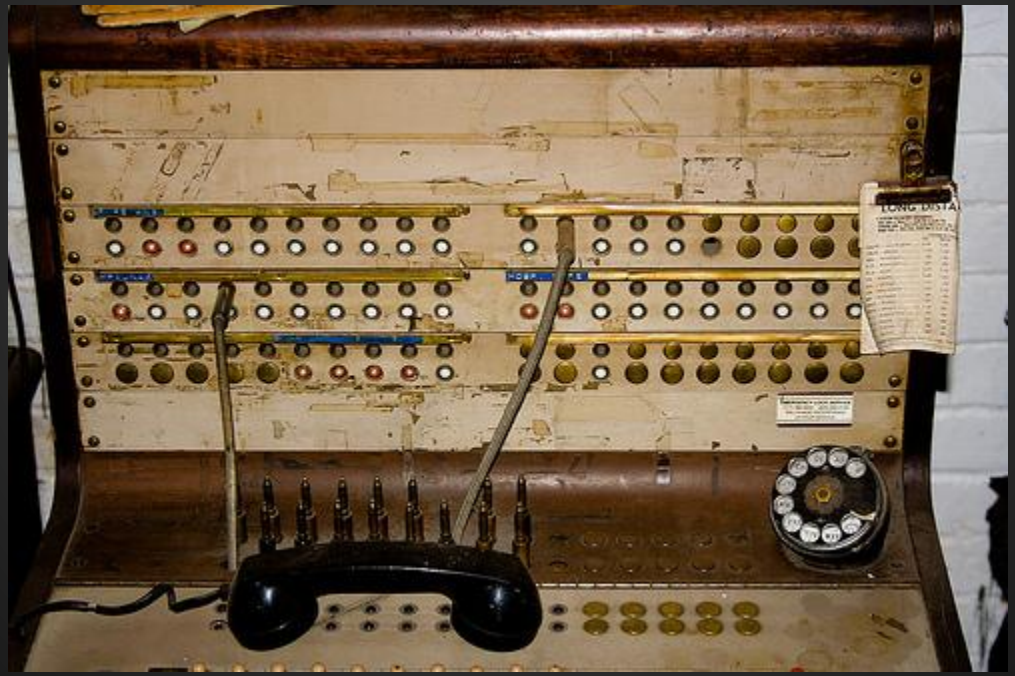
Once upon a time

there lived a mighty king

His name was C

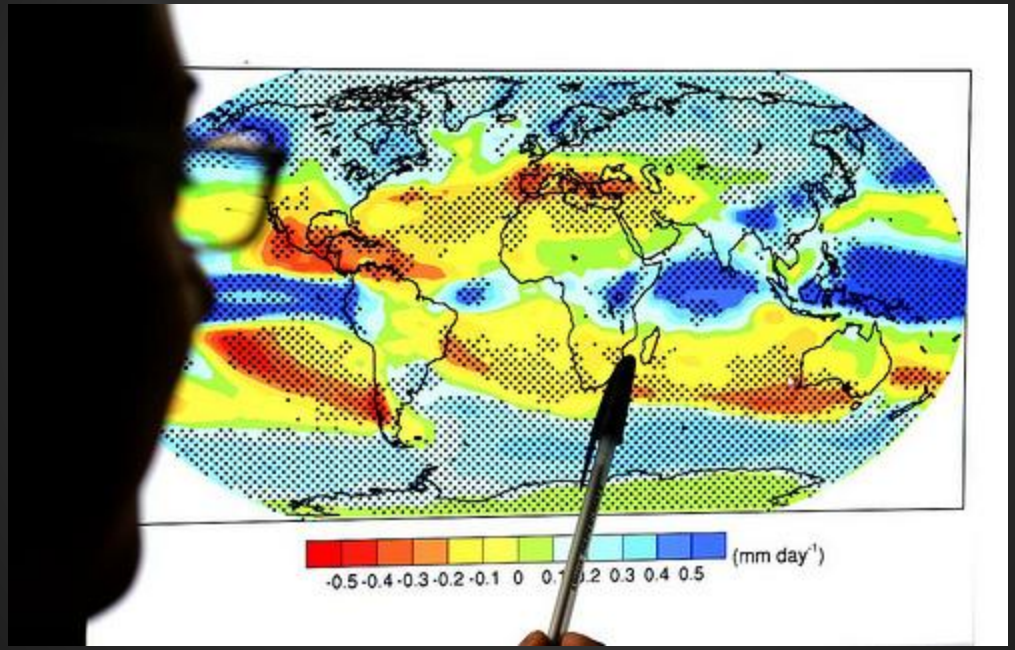
He ruled nearly everything

telecom, medicine, banks, games



King was getting older and paunchy

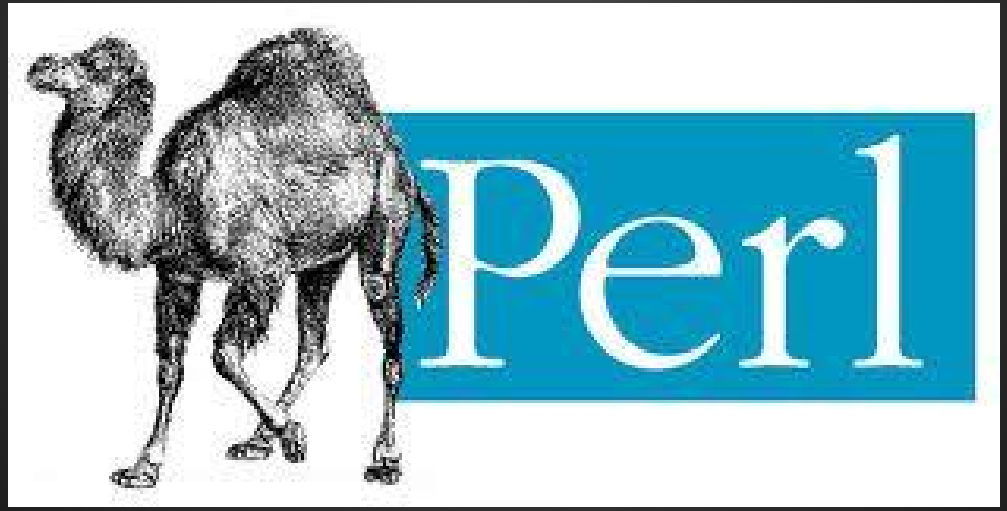
World was changing



Changing so fast..

New rivals have arrived

Caravane with nomads from the land of Perl

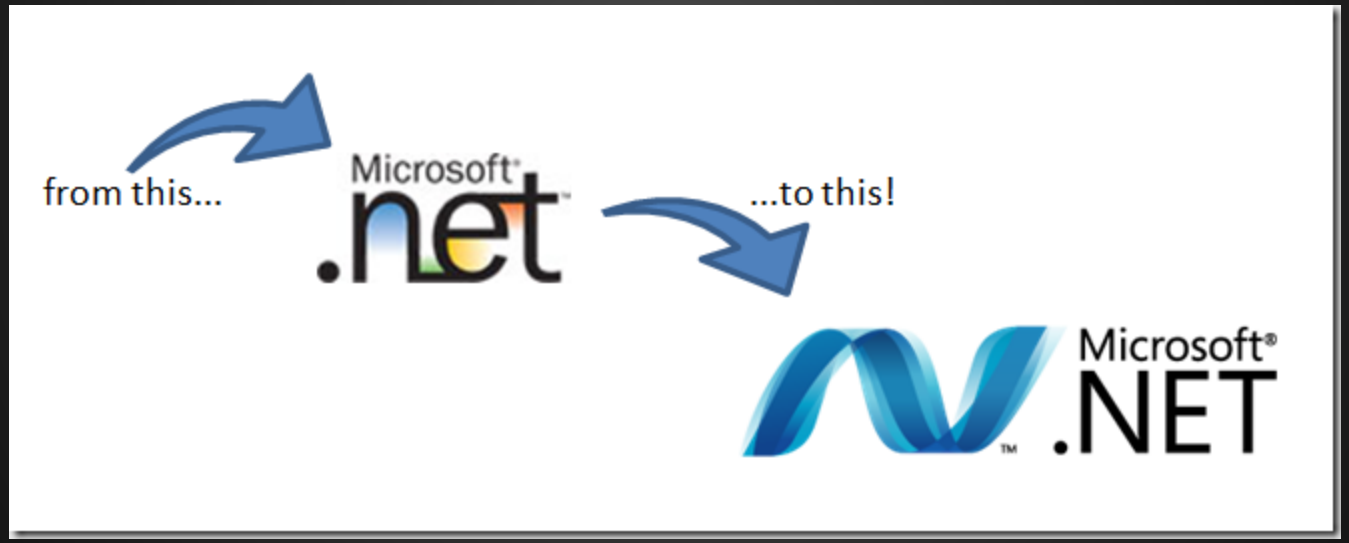


Lords of snakes

from the land of Python

Jewelers from the the land of Ruby

Sharp warriors from the land of .Net



Coffee magnates

from the land of Java

Cocoa drinkers
from the land of Apple trees

Old kingdom of C fell into oblivion

People were scared to enter the realm of old C

Beware SIGSEGV dragons!

Memory leak swamps!

Zombies of legacy code!

Evil MACROmancers

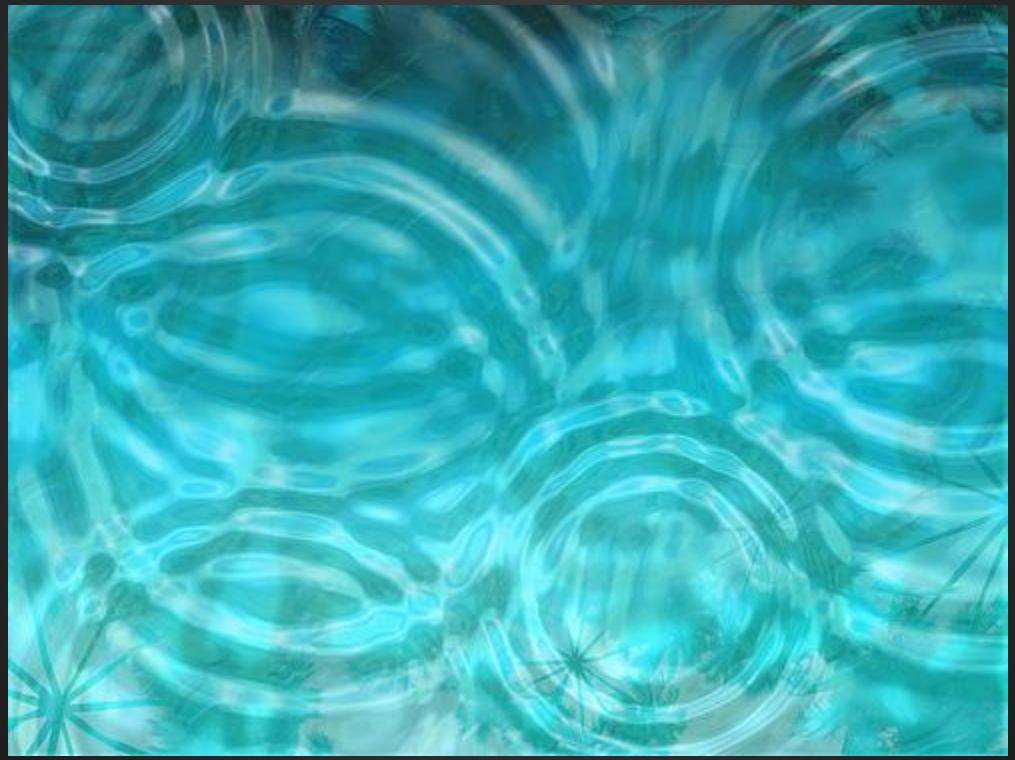
#define true false

Insidious multi-threaded bugs.

Scary place for life

The era of Cloud has emerged

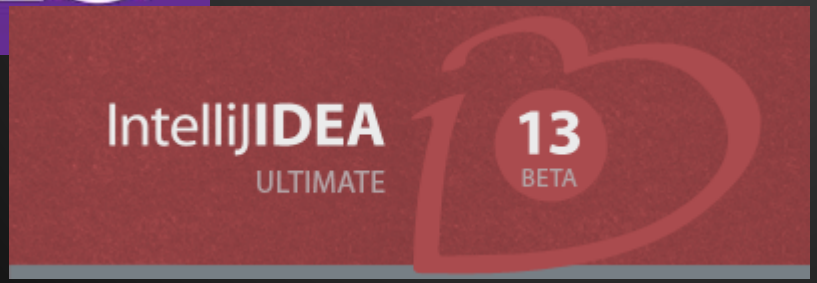
Technologies influencing each other



Breeze of fresh ideas starts blowing from NodeJS, AngularJS and others

Old rust is falling apart

New shiny tools and libraries



Scalable

Portable

Distributed

Performance

Asynchronous

Memory and energy efficiet

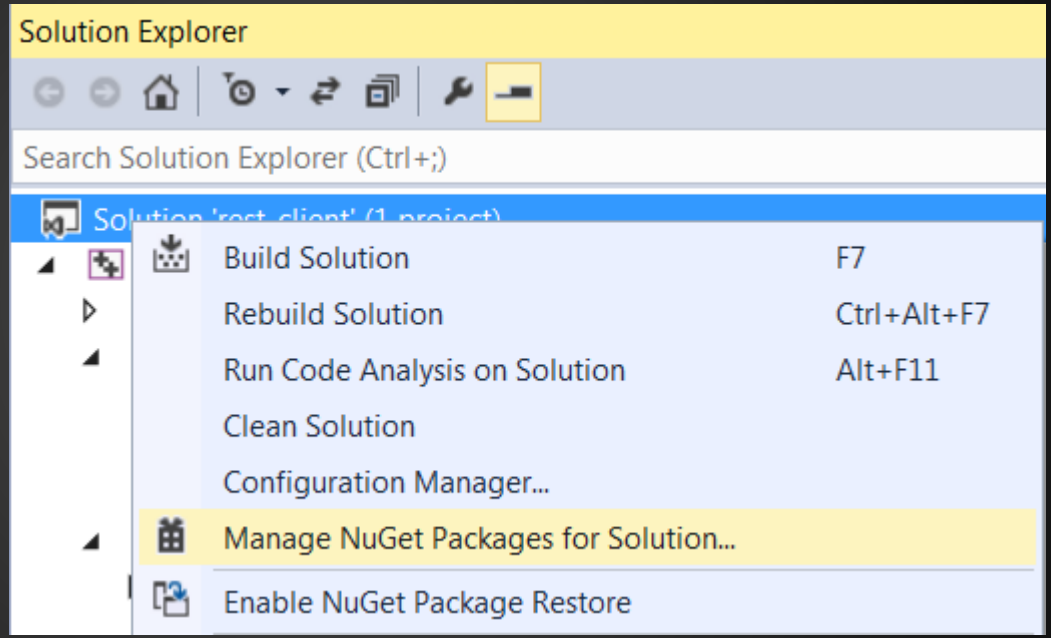
tiobe.com - programming lang. index

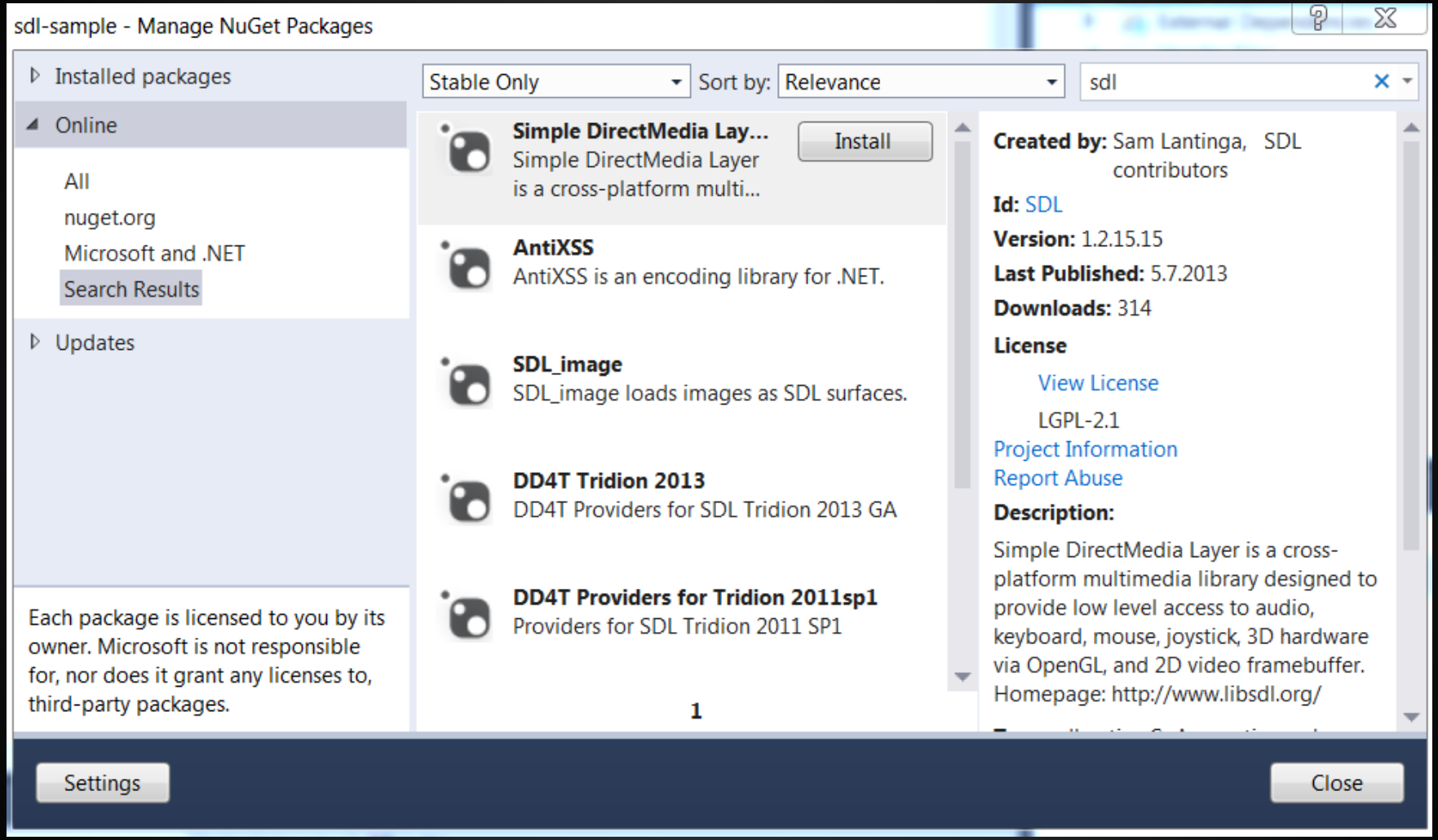
Position Nov 2013	Position Nov 2012	Delta in Position	Programming Language	Ratings Nov 2013	Delta Nov 2012	Status
1	1	=	C	18.155%	-1.07%	A
2	2	=	Java	16.521%	-0.93%	A
3	3	=	Objective-C	9.406%	-0.98%	A
4	4	=	C++	8.369%	-1.33%	A
5	6	↑	C#	6.024%	+0.43%	A
6	5	↓	PHP	5.379%	-0.35%	A
7	7	=	(Visual) Basic	4.396%	-0.64%	A
8	8	=	Python	3.110%	-0.95%	A
9	23	↑↑↑↑↑↑↑↑↑↑↑↑↑↑	Transact-SQL	2.521%	+2.05%	A
10	11	↑	JavaScript	2.050%	+0.77%	A

Visual Studio
2013

NuGet - http://www.nuget.org

NuGet.Tools.2013


Solution Explorer
Search Solution Explorer (Ctrl+;)
Build Solution F7
Rebuild Solution Ctrl+Alt+F7
Run Code Analysis on Solution Alt+F11
Clean Solution
Configuration Manager...
Manage NuGet Packages for Solution...
Enable NuGet Package Restore


sdl-sample - Manage NuGet Packages
Installed packages
Online
All
nuget.org
Microsoft and .NET
Search Results
Updates
Each package is licensed to you by its owner. Microsoft is not responsible for, nor does it grant any licenses to, third-party packages.
Stable Only
Sort by: Relevance
sdl
Simple DirectMedia Lay...
Simple DirectMedia Layer is a cross-platform multi...
Install
AntiXSS
AntiXSS is an encoding library for .NET.
SDL_image
SDL_image loads images as SDL surfaces.
DD4T Tridion 2013
DD4T Providers for SDL Tridion 2013 GA
DD4T Providers for Tridion 2011sp1
Providers for SDL Tridion 2011 SP1
1
Created by: Sam Lantinga, SDL contributors
Id: SDL
Version: 1.2.15.15
Last Published: 5.7.2013
Downloads: 314
License
View License
LGPL-2.1
Project Information
Report Abuse
Description:
Simple DirectMedia Layer is a cross-platform multimedia library designed to provide low level access to audio, keyboard, mouse, joystick, 3D hardware via OpenGL, and 2D video framebuffer.
Homepage: http://www.libsdl.org/
Settings
Close

SDL
Simple Directmedia Layer

Made with SDL

Made with SDL

Made with SDL: Half-Life 2

Multiplatform

SDL officially supports
Windows, Mac OS X, Linux, iOS, and Android.

Support for other platforms may be found in the source code.

SDL versions

1.2 stable - rock solid

2.x development - new features

SDL_init(flags)

SDL_INIT_TIMER - The timer subsystem

SDL_INIT_AUDIO - The audio subsystem

SDL_INIT_VIDEO - The video subsystem

SDL_INIT_CDROM - The cdrom subsystem

SDL_INIT_JOYSTICK - The joystick subsystem

SDL_INIT_EVERYTHING - All of the above

SDL_INIT_NOPARACHUTE - Prevents SDL from catching fatal signals

SDL_INIT_EVENTTHREAD - Runs the event manager in a separate thread

Quit application

SDL_quit()

Window

```
SDL_CreateWindow("Hello World!", 100, 100,
640, 480, SDL_WINDOW_SHOWN);
```

Load bitmap

```
SDL_Surface *bmp = nullptr;
bmp = SDL_LoadBMP("smajlik.bmp");
```

Visual data

SDL_Renderer
SDL_Texture

Keyboard

SDL_PollEvent(SDL_Event *event)

event.key.keysym.sym

Timer

```
SDL_TimerID SDL_AddTimer(
  Uint32             interval,
  SDL_TimerCallback callback,
  void*              param)
```

Mouse

SDL_GetMouseState(*x, *y);

Text

Not implemented

Extensions

extension for many languages:

C++, Java, Lua, Perl, PHP, Python, Ruby

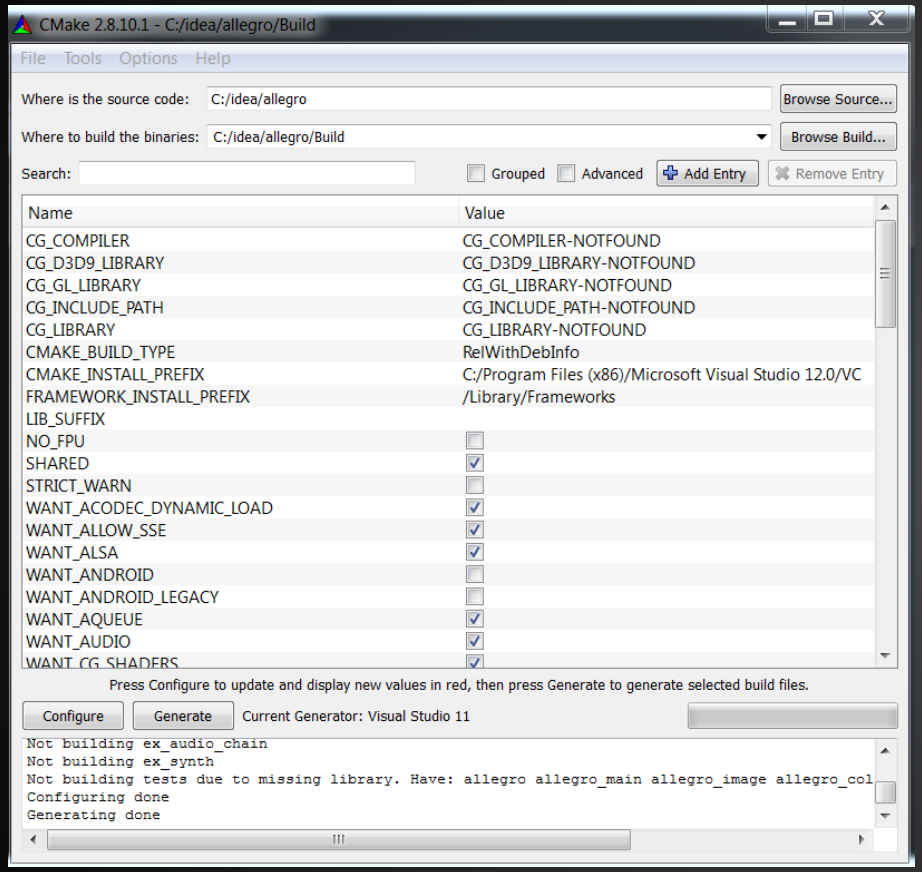
PyGame

Power of C and Power of Python

http://www.pygame.org

CMake

Allegro


CMake 2.8.10.1 - C:/idea/allegro/Build
File Tools Options Help
Where is the source code: C:/idea/allegro
Browse Source...
Where to build the binaries: C:/idea/allegro/Build
Browse Build...
Search:
Grouped
Advanced
Add Entry
Remove Entry
Name
Value
CG_COMPILER
CG_COMPILER-NOTFOUND
CG_D3D9_LIBRARY
CG_D3D9_LIBRARY-NOTFOUND
CG_GL_LIBRARY
CG_GL_LIBRARY-NOTFOUND
CG_INCLUDE_PATH
CG_INCLUDE_PATH-NOTFOUND
CG_LIBRARY
CG_LIBRARY-NOTFOUND
CMAKE_BUILD_TYPE
RelWithDebInfo
CMAKE_INSTALL_PREFIX
C:/Program Files (x86)/Microsoft Visual Studio 12.0/VC
FRAMEWORK_INSTALL_PREFIX
/Library/Frameworks
LIB_SUFFIX
NO_FPU
SHARED
STRICT_WARN
WANT_ACODEC_DYNAMIC_LOAD
WANT_ALLOW_SSE
WANT_ALSA
WANT_ANDROID
WANT_ANDROID_LEGACY
WANT_AQUEUE
WANT_AUDIO
Press Configure to update and display new values in red, then press Generate to generate selected build files.
Configure
Generate
Current Generator: Visual Studio 11
Not building ex_audio_chain
Not building ex_synth
Not building tests due to missing library. Have: allegro allegro_main allegro_image allegro_col
Configuring done
Generating done

Allegro 5.1

Win, Lin, Mac

iOS, Android

http://alleg.sourceforge.net/a5docs/refman/

Initialization

```
al_init();
```

Graphic environment

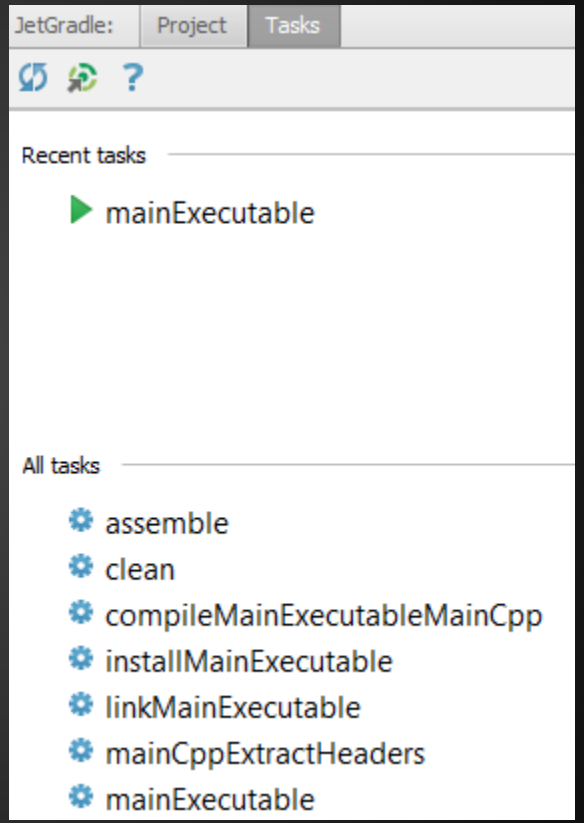
al_create_display(int w, int h)

Autiomation Evolved

Gradle - cpp-exe

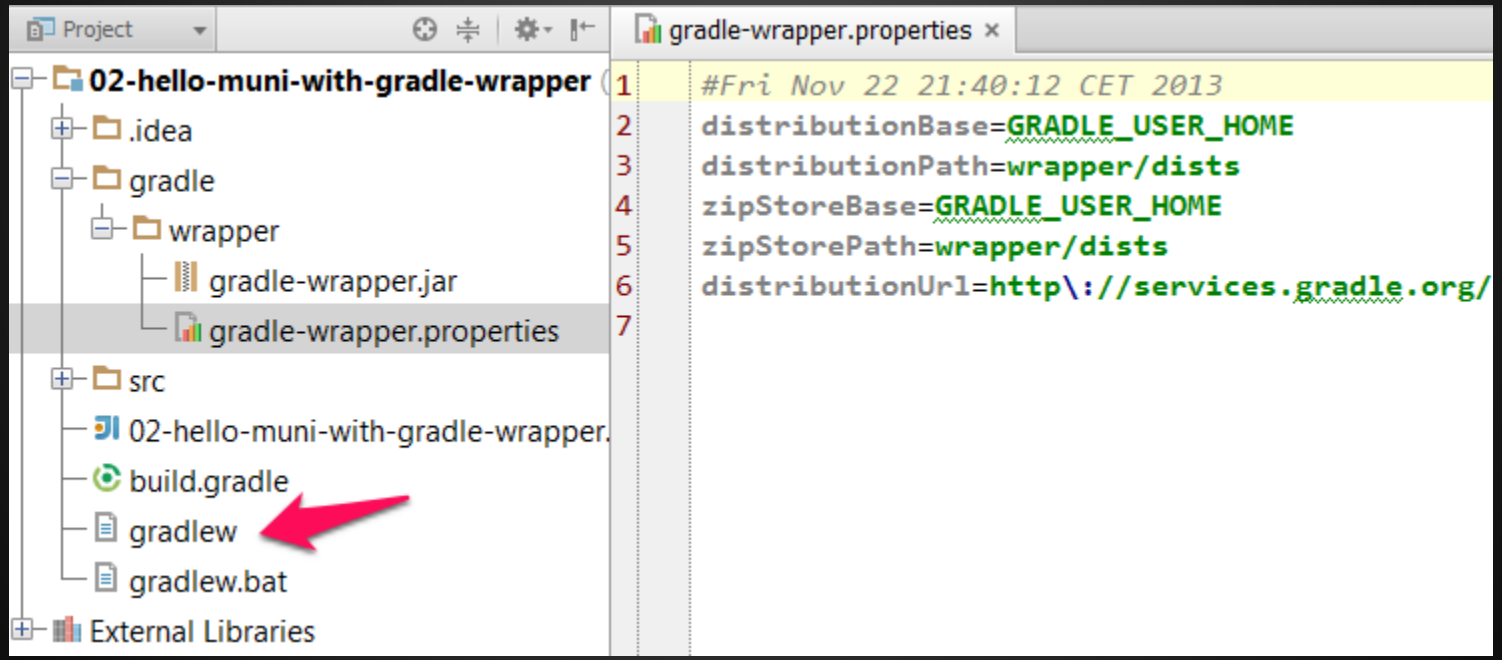
build.gradle

```
1    apply plugin: 'cpp-exe'
```

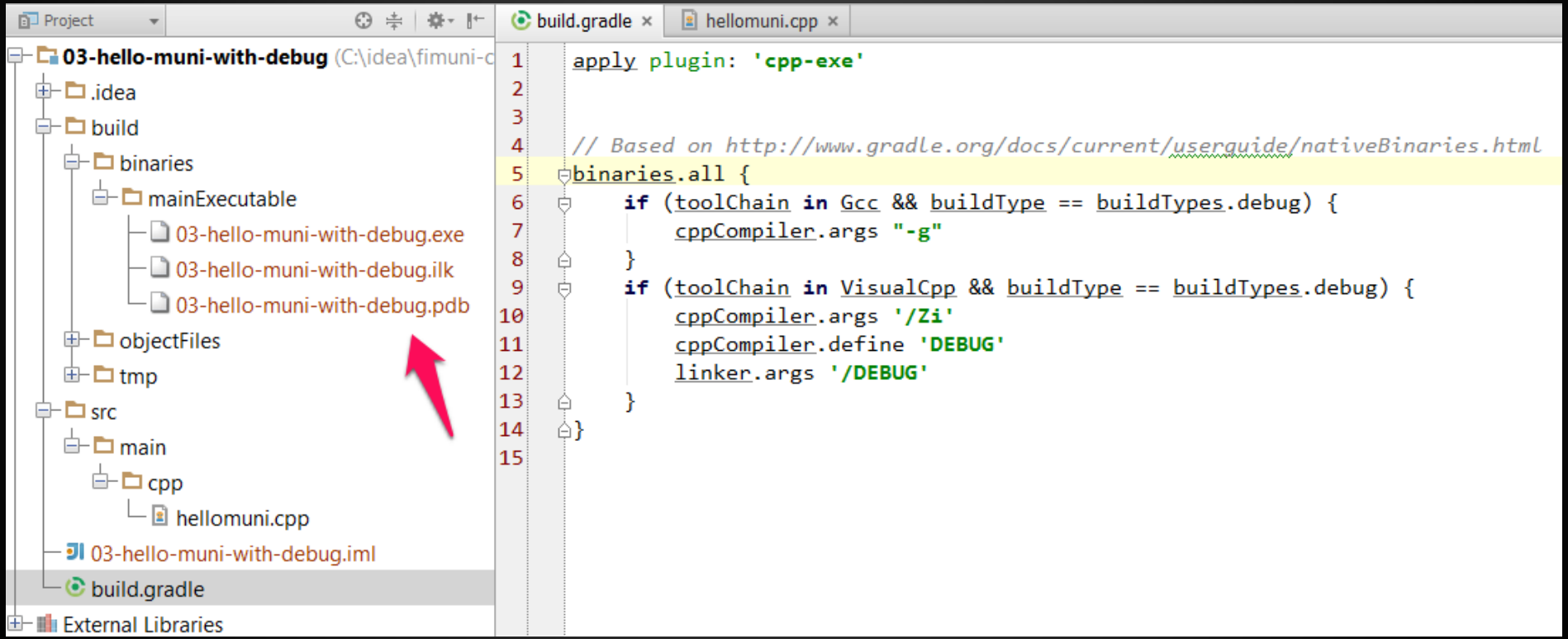


Gradle wrapper

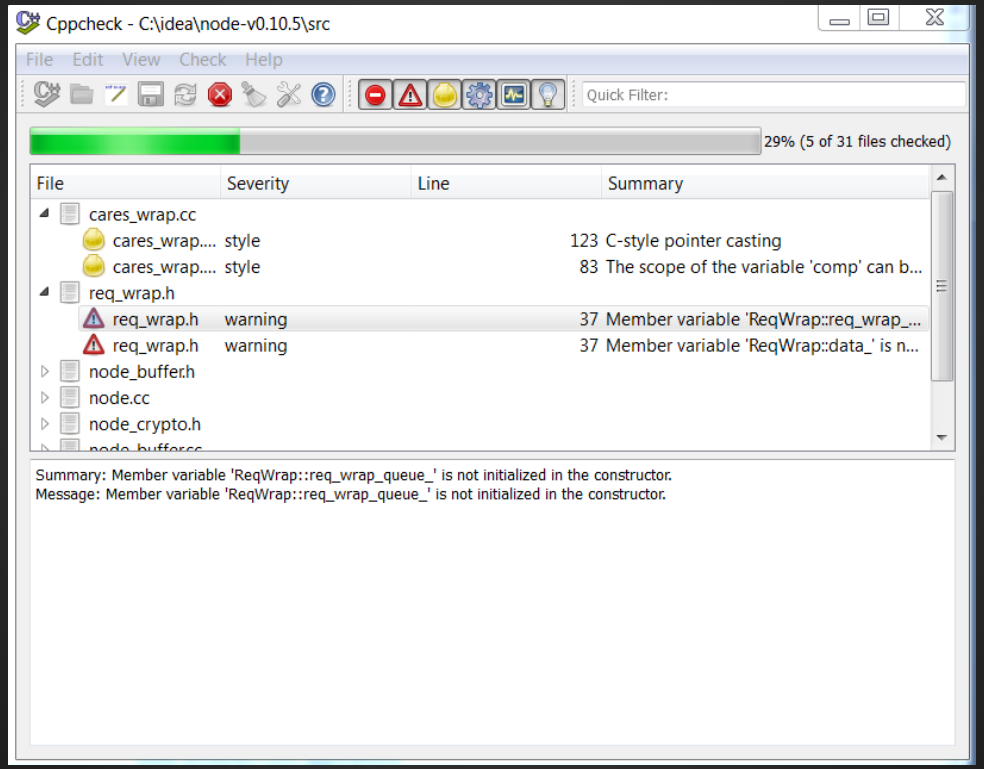
Download and prepare infrastructure



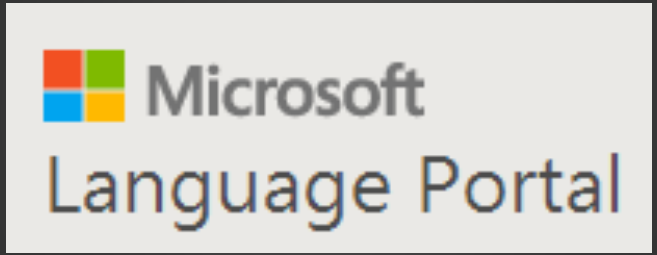
Gradle - compile with debug



Cppcheck


Cppcheck - C:\idea\node-v0.10.5\src
File Edit View Check Help
Quick Filter:
29% (5 of 31 files checked)
File
Severity
Line
Summary
cares_wrap.cc
cares_wrap.... style 123 C-style pointer casting
cares_wrap.... style 83 The scope of the variable 'comp' can b...
req_wrap.h
req_wrap.h warning 37 Member variable 'ReqWrap::req_wrap_...
req_wrap.h warning 37 Member variable 'ReqWrap::data_' is n...
node_buffer.h
node.cc
node_crypto.h
Summary: Member variable 'ReqWrap::req_wrap_queue_' is not initialized in the constructor.
Message: Member variable 'ReqWrap::req_wrap_queue_' is not initialized in the constructor.

L10N - verify your translations



http://www.microsoft.com/Language

cURL
groks those URLs

Continuous integration

ARDUINO

Opportunity for innovative students

Bachelor and master thesis @Y Soft

Contact person: Andriy.Stetsko@ysoft.com

Thanks to artists

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