A little code goes a long way

Cross-platform game development with Lua

™

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A bit of History

- Rich Lua support in Marmalade SDK
- Lua is used as a main scripting language in AAA titles
- Big interest in rapid app development and game prototyping

Marmalade for C++

- Pure C platform abstraction layer
- Unique custom build system powers everything
- Bundled toolchain - users need no platform SDK or code
- Deploy to: iOS, Android, BlackBerry 10, Windows Phone 8, LG TV, Roku TV, Mac and Windows desktop
- Plugins for Xcode (Mac) and Visual Studio (PC) for debugging
- Easily package and push to devices or store with the Hub
- Middleware, engines and extensions

2D development: the problem

- Developers were asking for rapid dev tools
- C++ runs fast but is slow to write!
- Many developers don’t want to learn C++
- Existing 2D RAD tools:
  - Very high level – nice editors but limited code support
  - Or lower level but not very extendable
  - Closed source
  - iOS and Android only
  - Lack of professional support
  - Rely on cloud-based building

A solution: Marmalade Quick

Marmalade… quick!

- Write apps in Lua: the fastest scripting language, simple but powerful
- No need to know or use C++
- Do more with less code…
- …but open source and extendable if needed
- Uses popular frameworks like Cocos2d under the hood
- Utilise Marmalades robust cross platform foundations, MKB project system and deployment options
- Full Lua IDE for debugging

Where to?

- OS
- Android
- Windows Phone 8
- Windows Desktop
- Mac Desktop
- Tizen
- BlackBerry 10
- BlackBerry Playbook
- Roku

How Quick works

- Quick's APIs and your game code are entirely in Lua
- Quick has bindings from Lua APIs to C++ implementations
- A precompiled Marmalade C++ app implements the performance critical engine parts using Cocos2d-x, provides the bindings and loads & executes your Lua code
- Lua code runs via a C++ implementation of Lua that is built into the app

When the app is launched…

- The C++ part launches like a regular Marmalade app, including desktop Simulator support
- It does initialisation: system, memory, GL, event handlers…
- It creates a Lua runtime to run scripts
- It initialises the Quick engine code
- It loads your app's main.lua file and executes "your app"

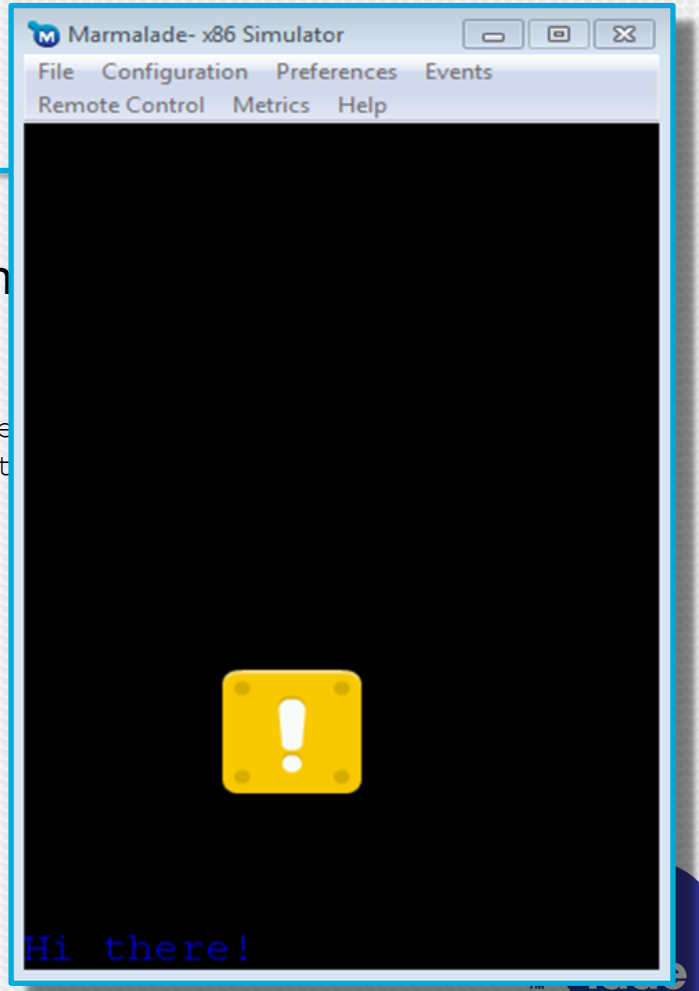
- You can simply edit Lua code and reload updates live in the desktop simulator

A simple example

Display a label and a textured button that will ch

```
local label = director:createLabel(0, 0, "Hi there
local button = director:createSprite(0, 100, "text

function button:touch(event)
     if (event.phase == "began") then
        label.color = color.blue
     end
end
button:addEventListener("touch", button)
```

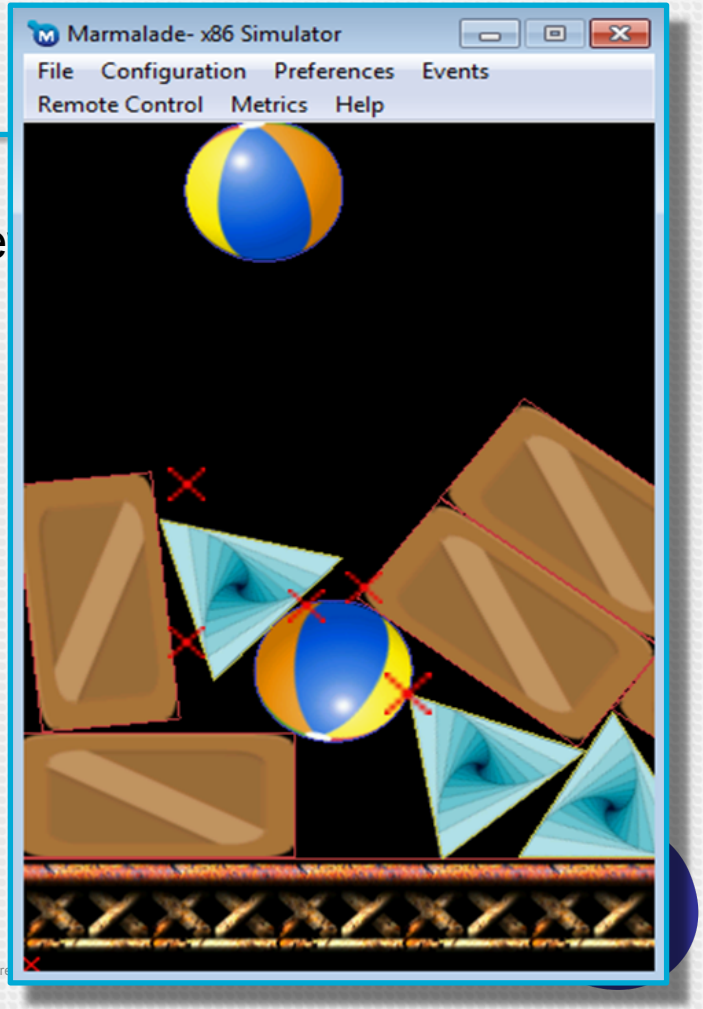


Something more complex

Add images on touch events, plus physics in a fe

```
function systemEvents:touch(event)
  if event.phase == "began" then
    local b = director:createSprite(event.x, event.
    physics:addNode(b, {radius=40})
    b:addEventListener("collision", bodyCollision)
  end
end

function bodyCollision(event, target)
  if event.phase == "began" then
    local c = director:createSprite(event.x, event.
    tween:to(c, {time=0.25, xScale=0, yScale=0})
  end
end
```



Demo

Open source components

- OpenQuick (free) contains:
  - C++ source for the Quick frameworks, including integration of Cocos2d, Box2d, etc.
  - Open source Lua wrappings and additional APIs to provide a super easy to use high level interface
- You can get this from GitHub and compile as platform-specific projects without Marmalade
- Marmalade Quick (licensed) adds:
  - Non-standards-based (but super useful) features like accelerometer, location and in-app billing, via the abstraction APIs in the regular Marmalade C++ product
  - Support for Hub, deployment and debugging tools
  - Robust internals to hide device and GPU fragmentation issues

Extending Quick

- The C++ and Lua parts of Quick are open source: you can extend and improve them
- Quick includes **toLua**, which allows you to wrap any Marmalade C++ API with Lua code and support it in Quick

- Marmalade C++ supports loads of C++ extensions and middleware to take advantage of
- Marmalade 1st party C++ APIs are also extendable:
  - Many are provided as open source extensions
  - An extensions kit allows you to create new C APIs to give access to additional platform features

- Using Cocos2d and Lua means that various sprite and scene editors could be easily integrated…

Do more with Marmalade

Lua

C++ Middleware

Platform abstraction

Lua engine components

Lua wrappers for some S3E APIs

Quick's C++ engine components

Marmalade Quick out of the box

New Lua wrappers for S3E & C++ APIs

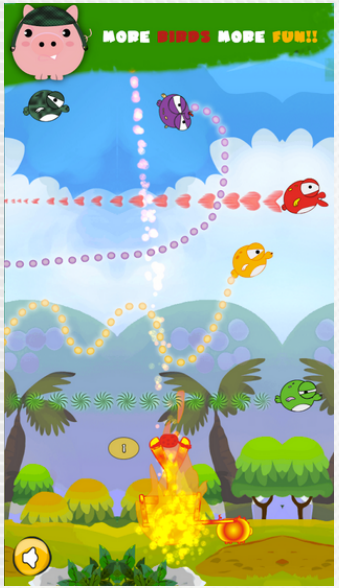
New Lua wrappers for Extensions

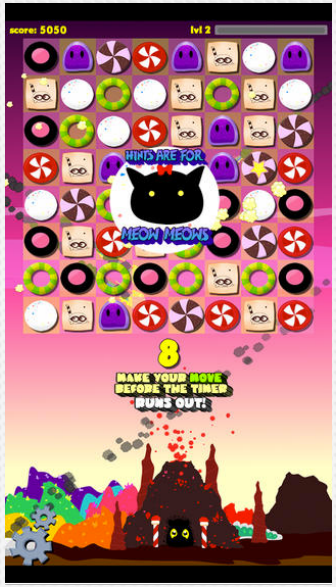
Marmalade S3E Core APIs
(file, memory, compass, accelerometer, video…)

Extensions

Cases

- Shoot Me!
- Dream Candy Planet
- Signal to The Stars
- Coins and Stuff





Questions?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