What's new in LuaRocks

Hisham Muhammad
h@hisham.hm

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What is LuaRocks

Package manager...

- like dpkg (apt-get), RPM, etc.
- like RubyGems, Python eggs, npm, CPAN, etc.

...for Lua modules

- written in Lua (.lua files)
- or binary modules (.so/.dll files)

What does it do

- The usual tasks of a language-oriented package manager
  - Install
    - ...and make sure that Lua will find the module
  - Remove
    - ...and make sure things don't blow up
  - Verify dependencies
    - ...when installing and removing
  - Compile
    - ...because Lua modules may be written in Lua or C (or any other language, but typically C)

How does it work

Command-line tools

- `luarocks` and `luarocks-admin`

Packaging rules specification format

- .rockspec files

Package format

- .rock files

Serving packaged modules

- rocks server

Up and running in one slide!

```
~$ wget http://lua.org/ftp/lua-5.2.3.tar.gz
~$ tar zxvpf lua-5.2.3.tar.gz
~$ cd lua-5.2.3
~$ make linux; sudo make install; cd ..
~$ wget http://luarocks.org/releases/luarocks-2.2.0.tar.gz
~$ tar zxvpf luarocks-2.2.0.tar.gz
~$ cd luarocks-2.2.0
~$ ./configure; sudo make bootstrap; cd ..
~$ sudo luarocks install luasocket
~$ lua
Lua 5.2.3  Copyright (C) 1994-2013 Lua.org, PUC-Rio
> require "socket"
```

The rockspec format

```
package = "midialsa"; version = "1.21-0"
source = {
   url = "http://www.pjb.com.au/comp/lua/midialsa-1.21.tar.gz",
   md5 = "072844348e66c04cee42a5b489784453"
}
description = {
   summary  = "Provides access to the ALSA sequencer", detailed = "...",
   homepage = "http://www.pjb.com.au/comp/lua/midialsa.html",
   license  = "MIT/X11"
}
dependencies = { "lua >= 5.1" }
external_dependencies = {
   ALSA = { header  = "alsa/asoundlib.h", library = "asound" }
}
build = {
   type = "builtin",
   modules = {
      ["midialsa"] = "midialsa.lua",
      ["C-midialsa"] = {
         sources = { "C-midialsa.c" },   libraries = { "asound" },
         incdirs = { "$(ALSA_INCDIR)" }, libdirs = { "$(ALSA_LIBDIR)" },
      }
   },
   copy_directories = { "doc", "test" }
}
```

Rocks

- A rock contains modules and the rockspec
  - May contain binaries or source code
- `package-version-revision.type.rock`
  - `luafilesystem-1.5.0-2.src.rock`
  - `lpeg-0.10-2.win32-x86.rock`
  - `lxsh-0.8.6-1.all.rock`
- It's just a zip file with standard contents:
  - Rockspec and `rock_manifest` at the root
  - Subdirectories: `lua/`, `lib/`, `bin/`...

Rocks server

- A location containing .rock/.rockspec files
  - Directory with rocks and a **`manifest`** index file
  - Generate: **`luarocks-admin make-manifest`** ***`dirname`***
  - A set of rocks installed locally is called a "rocks tree"

```
~$ luarocks install luasocket \
      --from=http://example.com/my_repository/
```

```
~$ luarocks install luasocket --from=/usr/local/myrocks/
```

```
~$ luarocks install ./foo-1.0-1.rockspec
```

```
~$ luarocks install http://example.com/foo-1.0-1.rockspec
```

A quick look back at last year's talk

- "LuaRocks - past, present and future"
- Part III - The future
  - Future of the rocks server: curation and scalability
  - LuaDist and Lua for Windows
  - Improving the interplay with distros
  - Further development
    - More extensibility
    - LuaRocks as a library

What has changed this year

- LuaRocks 2.1.2
  - `luarocks doc` ***foo***
  - improvements on Windows
  - **`rocks_provided`** so you can preload dependencies
- LuaRocks 2.2.0
  - preliminary support for Lua 5.3
  - `luarocks upload` ***foo-1.0-1.rockspec***
  - new default rocks server!

luarocks doc

- Documentation for modules:
  it's important we all want it
- Like in many aspects of the Lua world,
  there are no standards
- Something is better than nothing,
  so I came up with some heuristics
  - Is there a `doc` directory? `docs`?
  - {`index`|`readme`|`manual`}{`.htm`|`.html`|`.md`|`.txt`|...}
  - Use the system browser or print it in stdout
  - When in doubt, just list the available docs

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rocks_provided

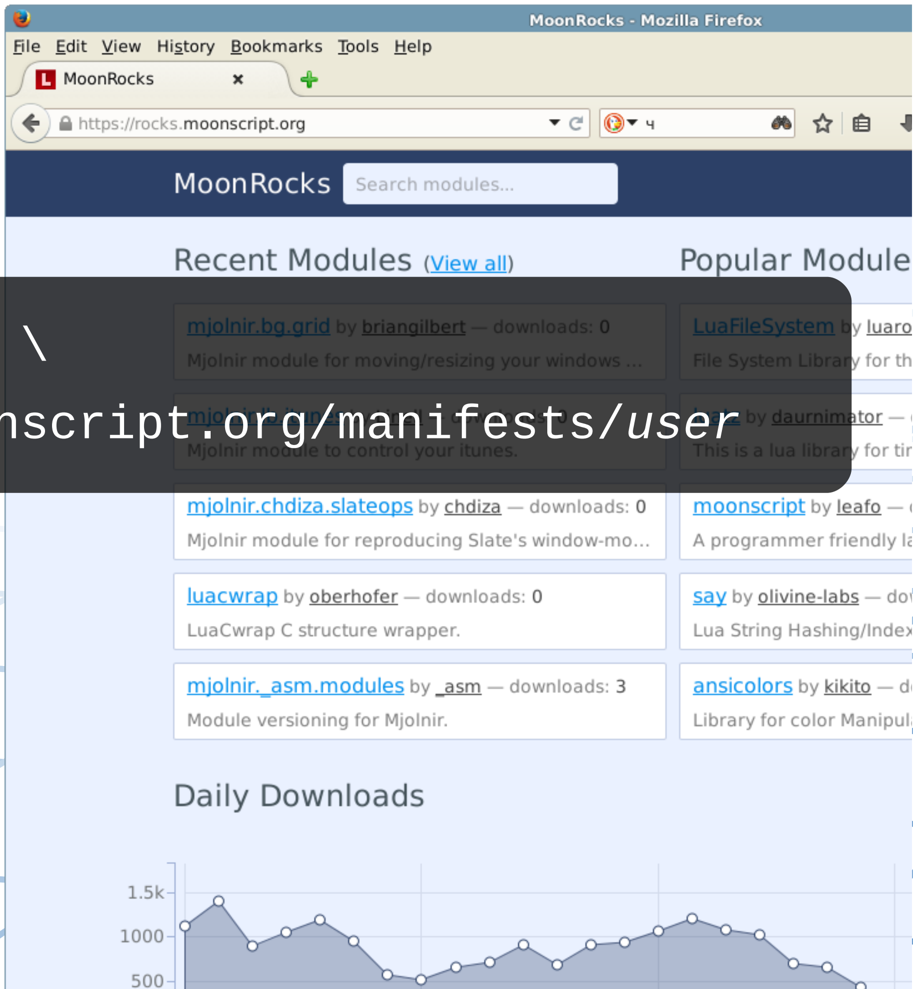
- A table in the configuration file with rocks that are considered "installed" even if they are not in the rocks tree
  - `bit32` in Lua 5.2, `luabitop` in LuaJIT, `utf8` in Lua 5.3...
  - Not sure how to specify `ffi` there
- This *could* evolve into something to be used by distros
  - Let them auto-register Lua modules installed outside of LuaRocks

The big change in the ecosystem

- MoonRocks is now the default rocks server
  - by Leaf Corcoran - http://rocks.moonscript.org
- Anyone can upload rocks
  - And host their own server:

```
~$ luarocks install luasocket \
      --from=http://rocks.moonscript.org/manifests/user
```

  - Rocks you own go into the root manifest, immediately available for everyone


MoonRocks - Mozilla Firefox
File Edit View History Bookmarks Tools Help
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mjolnir.bg.grid by briangilbert — downloads: 0
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Mjolnir module for reproducing Slate's window-mo...

luacwrap by oberhofer — downloads: 0
LuaCwrap C structure wrapper.

mjolnir._asm.modules by _asm — downloads: 3
Module versioning for Mjolnir.

Popular Module

LuaFileSystem by luaro
File System Library for th

by daurnimator —
This is a lua library for ti

moonscript by leafo —
A programmer friendly la

say by olivine-labs — do
Lua String Hashing/Index

ansicolors by kikito — d
Library for color Manipul

Daily Downloads

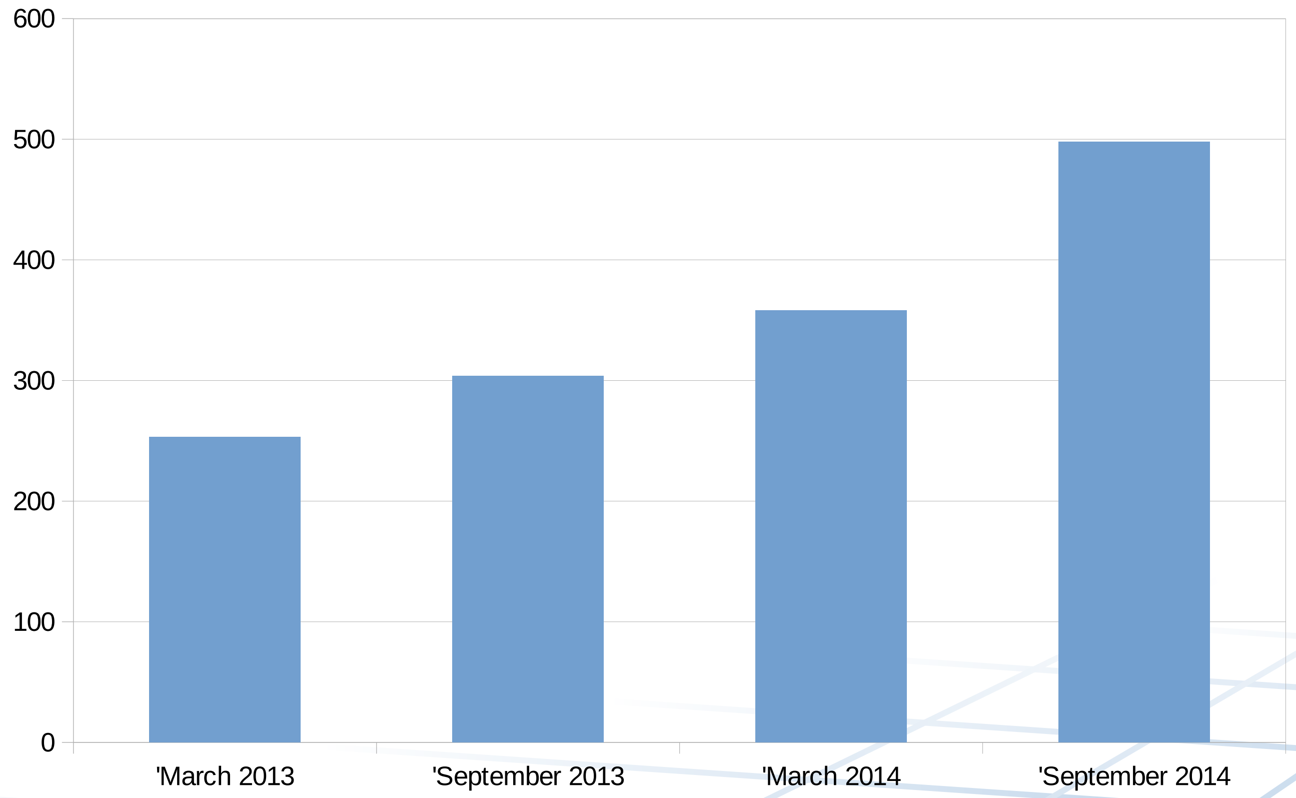
luarocks upload

- Uploads rocks to MoonRocks
  - Go to MoonRocks, create an account
  - Go to Settings, generate an API key

```
~$ luarocks upload ./foo-1.0-1.rockspec \
      --api-key=i5c02i3slkcrbd2if2sicd2rf289i23ndck2
```

  - It packs a .src.rock file and uploads both the .rockspec and .src.rock to MoonRocks
  - API key is saved in your home, no need to reenter it every time

Growth of the repository



Rockspec format

- Limitations of the rockspec format are well-known
  - "builtin" build mode compiles only C89, can't pass custom compiler flags
  - Can't use platform-specific detection for dependencies (pkg-config, etc.)
  - No separation between build/runtime dependencies
  - etc.
- Instead of a big redesign and another freeze, let's make it really extensible

LuaRocks add-ons

- The plan:
  - New kind of dependency that loads LuaRocks add-ons
  - Add-ons may add entries to the rockspec typechecker (new tables, new fields)
  - Hooks in build/install steps for add-ons to run
    - Possibilities: tests, generate docs, etc.
- Let users guide development

Rough proposal

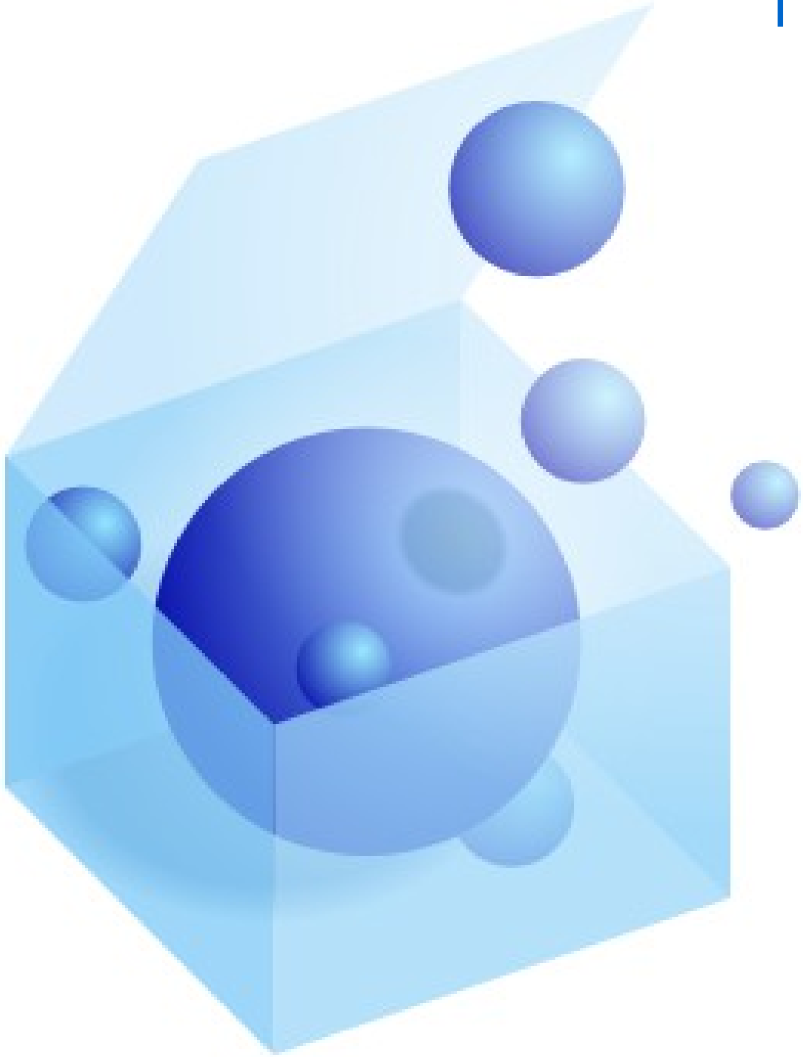
- Namespace: `luarocks.addon.`*`youraddon`*
  - Using: `using={"foo"}` loads `luarocks.addon.foo`
  - Lots of details to decide, but now LuaRocks can upgrade itself so we can evolve the `rockspec_format`
  - The future could look like this:

```
rockspec_format = "3.0"
using = {
   "build_dependencies", -- adds support for build-only dependencies
   "busted",             -- ensures Busted is installed, runs tests
   "ldoc",               -- generates docs using LDoc
   "build.ext >= 2.0",   -- example build type extending builtin
}
build_dependencies = { "bin2c >= 1.2" }
build = {
   type = "ext",
   modules = { ["foo"] = { language = "c99", sources = "foo.c" } },
}
doc = { --[[ ldoc specific flags ]] }
```

"LuaRocks as a library"

- Embedability
  - Make LuaRocks fully reentrant (remove all global state)
  - This will require a major refactoring
  - Typed Lua is coming for the rescue!
- Let's make LuaRocks extensible and embeddable, like Lua!

Thank you!



http://luarocks.org

Contact:
http://hisham.hm/
h@hisham.hm
@hisham_hm

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