R2env

An easy, portable and clean way to install
and use multiple versions of r2

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By pancake & Murphy

Presentation / Who we are?

Alex / Murphy

- Security researcher
- R2frida trainer and fanboy

Sergi / pancake

- Author of R2, R2Frida, Acr, Sdb, ...
- Mobile Security Analyst at NowSecure

The Problem

Sometimes we want to install a binary of one specific version

- Need a compiler for the target platform
- Network access to download the sources
- About 1GB free of disk + compiler toolchains

The Solution

Copy what other projects did already

- Do we want to reinvent the wheel?
  - Why not?
- Frida is shipped via pip install, building binaries for all the platforms.

There are other portable package managers out there:

- Nvm for nodejs
- Rvm for Ruby
- Rustup for rust
- Pyenv / Pip
- Npm / Yarn

```
$ pip install r2env
```

But...

- Why Python? Aren't we supposed to blame this language?
  - Pip is available literally everywhere

- This is reinventing the wheel!
  - Totally agree, but at least we have the wheel under control

Use Cases

There are many reasons to use a local package manager like this:

- Try different versions to compare regressions, performance changes, etc
- Switch between installations easily
- Quickly install r2 anywhere without having to compile
- Don't pollute the system or run stuff with a controlled environment

Backends

- Sources of given Version
- Sources From Git
  - Meson/ninja
  - Acr/make
  - Git/zip
- Distro
  - Runs apt / brew / pkgutil / choco
- Release binaries
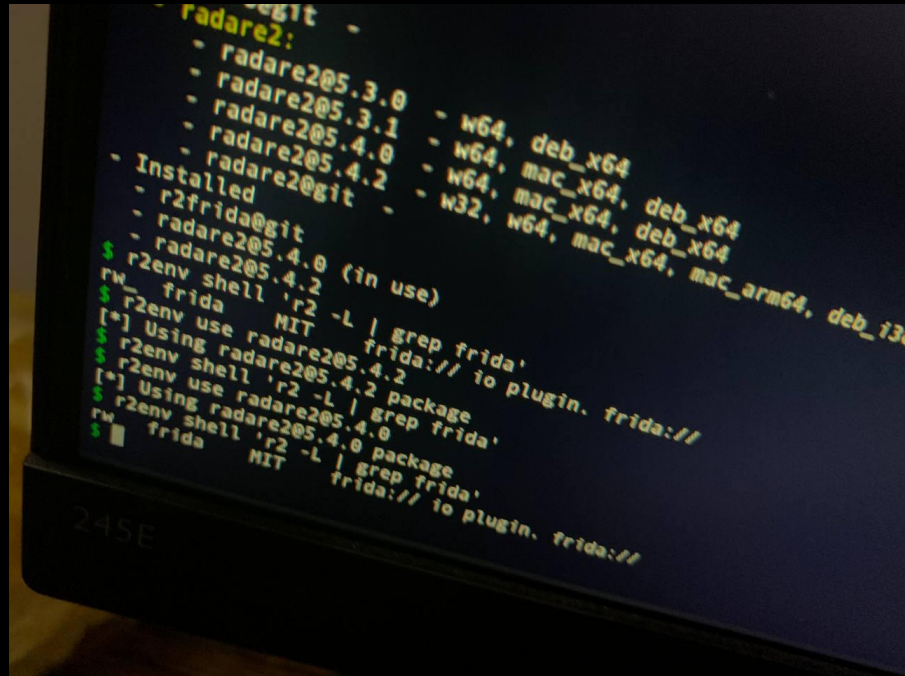 - Downloads from github
  - Also for plugins

Packaged Plugins

Not just this, we also plan to ship binary builds of the most used r2 plugins in binary form, making it easy for everyone.

- R2frida
- R2ghidra
- R2dec
- ...

Tied to the installation of r2

- no plugin conflict when switching

Target Operating Systems

Aims to support the following operating systems

- GNU/Linux (Ubuntu >= 18)
- macOS (.pkg for m1 and x64)
- Windows ZIPs

Near future:

- Cydia package for iOS
- Termux support for Android

Looking for Contributors

Still in early stage of development

- Open to contributions
- Updated after every release
- Support binary packages
- Add more plugins
- Integrate benchmark
- Checksums
- …

```
Usage: r2env [-flags] [action] [args...]

Flags:

-h, --help      - show this help
-v, --version   - display r2env version
-m, --meson     - use meson instead of acr
-p, --package   - install the dist package instead of building
-l, --list      - list available and installed packages

Actions:

init            - create ~/.r2env directory
config          - display current .r2env settings
add [pkg]       - build and install given package. See -p and -m
use [pkg]       - use r2 package defined. pkg should be a release or git.
rm [pkg]        - remove package from ~/.r2env
path            - show path of current r2 in use
version         - show version of r2env
list            - list all packages available to r2env
shell           - enter a new shell with PATH env var set
purge           - remove ~/.r2env

Environment

R2ENV_PATH      - specify different path other than ~/.r2env
```

DEMO TIME!

Questions?

(about r2env)

Thanks For Watching!