

{VMR} PACKAGE

MANAGE VIRTUAL MACHINES FOR/WITH R

<https://rstuff.gitlab.io/vmr/>

PRÉSENTATION

{VMR} R package allow to **manage, provision** and **use** a **Virtual Machine** preconfigured for **R**.

Develop, make tests and build a package in a clean environment with a choice of different providers and OS improve the quality, the productivity, the reproductibility and the share of R productions.

Here we present, the possibilities offered by {VMR} to manipulate a **VM** using **R** code.

How these VMs are built using severals pipelines over GitLab CI/CD and stored in the Vagrant cloud repository.

{VMR}

=> **R package to use Vagrant CLI tool**

- Vagrant have to be installed (>=2.2.10)
- Implement most of the commands
- Currently works for VirtualBox (≥ 6.1.14) provider

- `vmrList()` : List boxes (OS, R Versions, providers)
- `vmrCreate(...)` : Create a VMR environment
- `vmrInitEnv(...)` : Initialyse environment and download VM
- `vmrStart()`, `vmrSuspend()`, `vmrResume()`, `vmrStop()`

TOOLS



HashiCorp
Vagrant

Vagrant is a tool for building and managing virtual machine environments in a single workflow and focus on automation.
Open Source MIT License – HashiCorp

Box ~= a Virtual Machine
Provider ~= virtualization product

VirtualBox is a virtualization tool
Open Source GPL-v2 – ORACLE

Runs on and supports multiples OS



BOXES AND VM CREATIONS



GitLab

<https://gitlab.com/rstuff/vms>

Repositories use CI/CD
to create, provision and store boxes

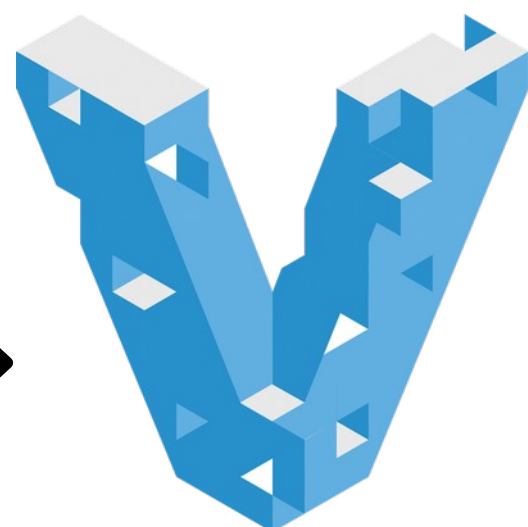
For Windows, Linux and Mac OS



HashiCorp
Packer

**CREATE
+
PROVISION**

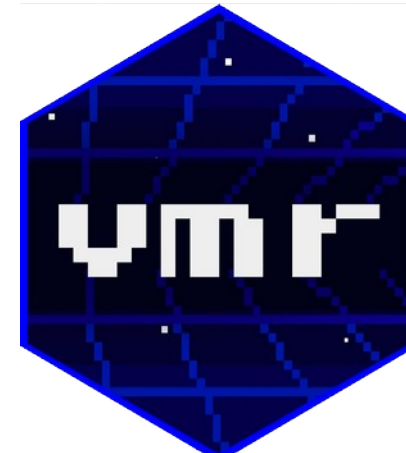
STORE



**VAGRANT
CLOUD**

LIST

DOWNLOAD



HANDLE



**VM
R version
OS**

<https://app.vagrantup.com/VMR/>

WORK WITH VMR



VirtualBox Options

```
opt ← virtualboxOptions()
```

```
opt$name ← "user"
```

```
opt$gui ← TRUE
```

```
opt$modifyvm$memory ← 4096
```

```
opt$modifyvm$cpu ← 4
```

R in the VM

```
vmrExec('print("Hello User!")')
```

```
vmrProvision(cmd="Rscript -e mycode.R", elt="mycode.R")
```

```
vmrInstallPackages(pkg = c("vmr"))
```

R Packages

```
vmrPackageCheck()
```

```
vmrPackageTest()
```

```
vmrPackageBuild()
```

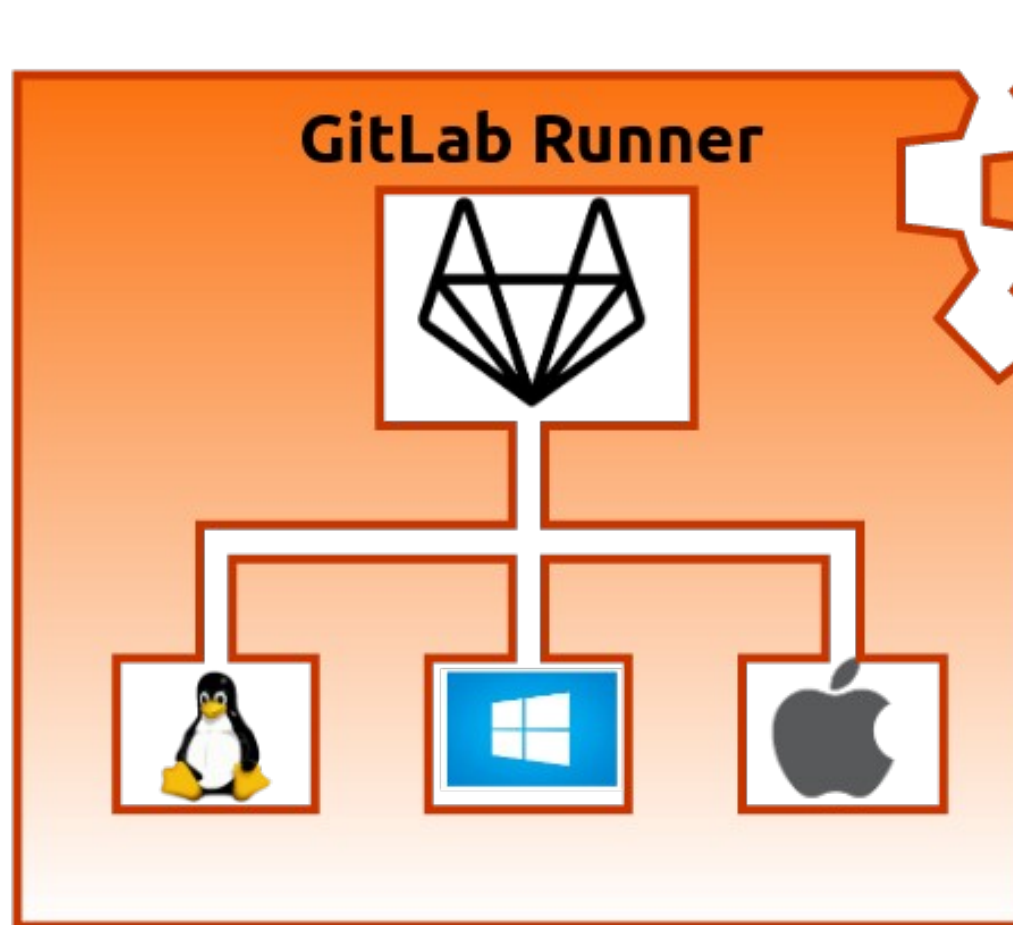
GITLAB-RUNNER

Use a VM as a GitLab Runner for CI/CD

`VirtualboxGitlabRunner(...)`→CLI to register the VM as Runner



Register



CI/CD



Automate Tests, Check and Build

PERSPECTIVES

- Add new providers : Docker, VMware, ...
- Find storage capacity for boxes
- Improve boxes provisionning
- Add new OS (Fedora, Solaris, ...)
- Improve integration for R Dev (simplify remote R, execution interactive shell, Rstudio addins)



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Biostatistique



& Processus Spatiaux