



# Setup R Packages

# devtools



# devtools

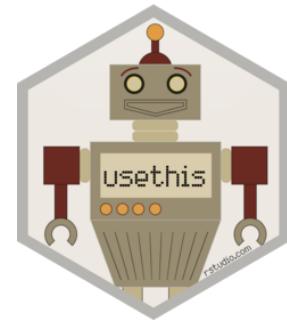


Tools to make an R developer's life easier

We'll be using functions like  
*load\_all()*, *build()*,  
*document()*, *test()*, and  
*check()*.



# usethis



Set up commonly used 📦 components

We'll be using functions like  
*create\_package()*, *use\_r()*,  
*use\_test()*, and many more.



# shinRa



An R package for the data science team at the Shinra Electric Power Company, also known as Shinra, Inc.

What will it do? Custom ggplot2 themes, reports, data connections and filtering, and more.



```
create_package("shinRa")
```

```
library(usethis)
create_package("shinRa")
```



```
library(usethis)
create_package("shinRa")

## ✓ ✓ Creating '/var/folders/w7/8yv1j00s0bb3pfhmqc_rvd980000gn/T/RtmpXLB4jp/file65297d09f369/shinRa'

## Package: shinRa
## Title: What the Package Does (One Line, Title Case)
## Version: 0.0.0.9000
## Authors@R (parsed):
##   * First Last <first.last@example.com> [aut, cre] (YOUR-ORCID-ID)
## Description: What the package does (one paragraph).
## License: `use_mit_license()`, `use_gpl3_license()` or friends to pick a
##   license
## Encoding: UTF-8
## Roxygen: list(markdown = TRUE)
## RoxygenNote: 7.1.2

## ✓ ✓ Writing 'NAMESPACE' ✓ Writing 'shinRa.Rproj' ✓ Adding '^shinRa\\.Rproj$' to '.Rbuildignore'

## /var/folders/w7/8yv1j00s0bb3pfhmqc_rvd980000gn/T//RtmpXLB4jp/file65297d09f369/shinRa
## └── DESCRIPTION
## └── NAMESPACE
## └── R
##   └── shinRa.Rproj
```



```
create_package("shinRa")
```

```
shinRa
├── .Rbuildignore
├── .gitignore
├── DESCRIPTION
├── NAMESPACE
├── R/
└── shinRa.Rproj
```



```
create_package("shinRa")
```



```
create_package("shinRa")
```

```
shinRa
├── .Rbuildignore
├── .gitignore
└── DESCRIPTION
├── NAMESPACE
├── R/
└── shinRa.Rproj
```

```
pkg info
author info
dependencies
```



```
create_package("shinRa")
```

```
shinRa
├── .Rbuildignore
├── .gitignore
├── DESCRIPTION
└── NAMESPACE
  └── R/
    └── shinRa.Rproj
```

export  
functions



```
create_package("shinRa")
```

```
shinRa
├── .Rbuildignore
├── .gitignore
├── DESCRIPTION
└── NAMESPACE
   └── R/ ← R code
      └── shinRa.Rproj
```



```
create_package("shinRa")
```

```
shinRa
├── .Rbuildignore
├── .gitignore
├── DESCRIPTION
├── NAMESPACE
└── R/
    └── shinRa.Rproj
```

RStudio  
Project



# Your Turn 1

Load `usethis` and `devtools` if you haven't.

Open the `DESCRIPTION` file and take a look. It's very generic!

Run `edit_r_profile()`. Copy and paste this code into your R profile, but change it to your name and email. If you would like to add your ORCID ID see `?use_description` for an example for an example that includes that.

Then, restart your R session (`Session > Restart R`).

If you don't want to change your R profile, you can just run the code in the console without running `edit_r_profile()` or restarting

When you've restarted, run `use_description()` to replace the `DESCRIPTION` file.

Open the `DESCRIPTION` file and take a look around.



# Your Turn 1: Stretch Goal

Read the help page for `use_usethis()`. If there are any of these that you'd like available in all interactive sessions, run the function to get the related code and add it to your R Profile.



# avalanchr

An R package  
for the data  
science team  
for the  
**AVALANCHE**  
ecological  
insurgency  
organization.



```
Package: shinRa
Title: What the Package Does (One Line, Title
Case)
Version: 0.0.0.9000
Authors@R:
  person(given = "Malcolm",
          family = "Barrett",
          role = c("aut", "cre"),
          email = "malcolmbarrett@gmail.com")
Description: What the package does (one
paragraph).
License: MIT + file LICENSE
Encoding: UTF-8
LazyData: true
Roxygen: list(markdown = TRUE)
```



**Package: shinRa**

Title: What the Package Does (One Line, Title Case)

Version: 0.0.0.9000

Authors@R:

```
person(given = "Malcolm",
       family = "Barrett",
       role = c("aut", "cre"),
       email = "malcolmbarrett@gmail.com")
```

Description: What the package does (one paragraph).

License: MIT + file LICENSE

Encoding: UTF-8

LazyData: true

Roxygen: list(markdown = TRUE)





# Valid package names:

1. Consist of letters, numbers, or periods.
2. Start with a letter.
3. Do *not* end with a period



Use the available package  
to check your package  
name

# Naming your package

```
available::suggest("Shinra Electric Power")
```

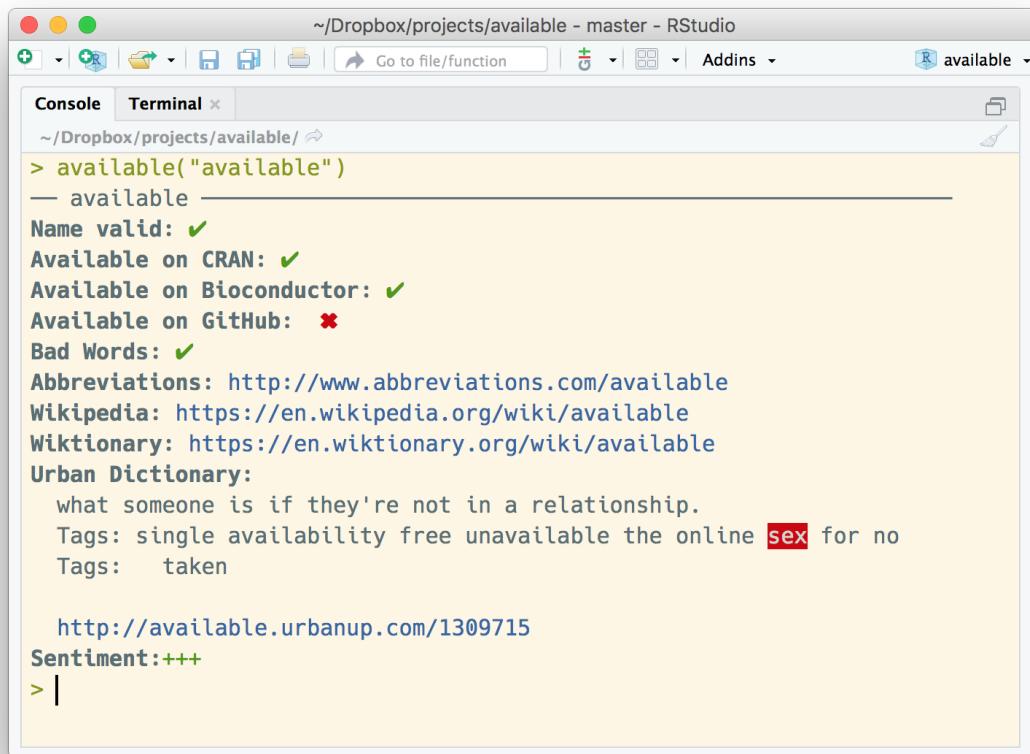
```
## shinrar
```

Also see ["Naming Things"](#)



# Is the name available?

```
available::available("package.name")
```



The screenshot shows the RStudio interface with the title bar "~/Dropbox/projects/available - master - RStudio". The console tab is active, displaying the command > available("available"). The output shows the following results:

- Name valid: ✓
- Available on CRAN: ✓
- Available on Bioconductor: ✓
- Available on GitHub: ✘
- Bad Words: ✓
- Abbreviations: <http://www.abbreviations.com/available>
- Wikipedia: <https://en.wikipedia.org/wiki/available>
- Wiktionary: <https://en.wiktionary.org/wiki/available>
- Urban Dictionary:
  - what someone is if they're not in a relationship.
  - Tags: single availability free unavailable the online sex for no
  - Tags: taken
- <http://available.urbanup.com/1309715>

Sentiment:+++

> |



Package: shinRa

Title: What the Package Does (One Line, Title Case)

Version: 0.0.0.9000

Authors@R:

```
person(given = "Malcolm",
       family = "Barrett",
       role = c("aut", "cre"),
       email = "malcolmbarrett@gmail.com")
```

Description: What the package does (one paragraph).

License: MIT + file LICENSE

Encoding: UTF-8

LazyData: true

Roxygen: list(markdown = TRUE)



**Title** **ggplot2: An implementation of the Grammar of Graphics**

**Description** An implementation of the grammar of graphics in R. It combines the advantages of both base and lattice graphics: conditioning and shared axes are handled automatically, and you can still build up a plot step by step from multiple data sources. It also implements a sophisticated multidimensional conditioning system and a consistent interface to map data to aesthetic attributes. See the [ggplot2](#) website for more information, documentation and examples.

Version: 1.0.0  
Depends: R ( $\geq$  2.14), stats, methods  
Imports: [plyr](#) ( $\geq$  1.7.1), [digest](#), grid, [gttable](#) ( $\geq$  0.1.1), [reshape2](#), [scales](#) ( $\geq$  0.2.3), [proto](#), [MASS](#)  
Suggests: [quantreg](#), [Hmisc](#), [mapproj](#), [maps](#), [hexbin](#), [maptools](#), [multcomp](#), [nlme](#), [testthat](#), [knitr](#), [mgcv](#)  
Enhances: [sp](#)  
Published: 2014-05-21  
Author: Hadley Wickham, Winston Chang  
Maintainer: Hadley Wickham <h.wickham at gmail.com>  
BugReports: <https://github.com/hadley/ggplot2/issues>  
...  
GPL-2

image from [R Packages, ed. 2](#)



```
Package: shinRa
Title: What the Package Does (One Line, Title
Case)
Version: 0.0.0.9000
Authors@R:
  person(given = "Malcolm",
          family = "Barrett",
          role = c("aut", "cre"),
          email = "malcolmbarrett@gmail.com")
Description: What the package does (one
paragraph).
License: MIT + file LICENSE
Encoding: UTF-8
LazyData: true
Roxygen: list(markdown = TRUE)
```



# Adding an author with desc

```
desc::desc_add_author(  
  given = "Rufus",  
  family = "Shinra",  
  role = "ctb",  
  email = "rufus@shinrainc.com",  
  comment = list("ORCID-ID" = "902348-439034"))  
)
```



# Adding an author with desc

```
desc::desc_add_author(  
  given = "Rufus",  
  family = "Shinra",  
  role = "ctb",  
  email = "rufus@shinrainc.com",  
  comment = list("ORCID-ID" = "902348-439034"))  
)
```



# Adding an author with desc

```
desc::desc_add_author(  
  given = "Rufus",  
  family = "Shinra",  
  role = "ctb",  
  email = "rufus@shinrainc.com",  
  comment = list("ORCID-ID" = "902348-439034"))  
)
```



# Adding an author with desc

```
desc::desc_add_author(  
  given = "Rufus",  
  family = "Shinra",  
  role = "ctb",  
  email = "rufus@shinrainc.com",  
  comment = list("ORCID-ID" = "902348-439034"))  
)
```



# R package roles

Code	Role
cre	Maintainer
aut	Author
ctb	Contributer
cph	Copyright-holder

Full list: <http://www.loc.gov/marc/relators/relaterm.html>



# Your Turn 2

Add a new author to `avalanchr` using `desc::desc_add_author()`. Set `given` to "Barret", `family` to "Wallace", and `role` to "aut".

In `DESCRIPTION`, change the title to "Tools for the Avalanche Data Science Team"

Change the `Description` field to "A set of tools to use within the Avalanche Data Science team. This package contains functions for connecting to data bases, R markdown templates, ggplot2 themes, and more."

Run `use_tidy_description()` to clean up the file.



```
Package: shinRa
Title: What the Package Does (One Line, Title
Case)
Version: 0.0.0.9000
Authors@R:
  person(given = "Malcolm",
          family = "Barrett",
          role = c("aut", "cre"),
          email = "malcolmbarrett@gmail.com")
Description: What the package does (one
paragraph).
License: MIT + file LICENSE
Encoding: UTF-8
LazyData: true
Roxygen: list(markdown = TRUE)
```



```
use __licence()
```

```
use mit license ("Company  
Name"). Check the help page for  
more.
```



```
use __licence()
```

```
use_mit_license("Company  
Name"). Check the help page for  
more.
```

**Help with open-source licenses:**  
<https://choosealicense.com/>

**Help with proprietary licenses:**  
<http://www.binpress.com/license-generator/>



# Proprietary licenses

```
use_proprietary_license("Shinra,  
Inc")
```

License: file LICENSE

Proprietary

Do not distribute outside of Shinra, Inc.

See also ["Copyright in Closed-Source R  
Packages: The Right Way"](#)



# Your Turn 3

Run

```
use_mit_license("AVALANCHE").
```

What changed?



## Your Turn 3: Stretch Goal

Add "AVALANCHE" as an author with the role of copyright holder.

Change the license to use the proprietary license above.



```
Package: shinRa
Title: What the Package Does (One Line, Title
Case)
Version: 0.0.0.9000 ← use_version()
Authors@R:           use_dev_version()
  person(given = "Malcolm",
         family = "Barrett",
         role = c("aut", "cre"),
         email = "malcolmbarrett@gmail.com")
Description: What the package does (one
paragraph).
License: MIT + file LICENSE
Encoding: UTF-8
LazyData: true
Roxygen: list(markdown = TRUE)
```



```
Package: shinRa
Title: What the Package Does (One Line, Title
Case)
Version: 0.0.0.9000
Authors@R:
  person(given = "Malcolm",
          family = "Barrett",
          role = c("aut", "cre"),
          email = "malcolmbarrett@gmail.com")
Description: What the package does (one
paragraph).
License: MIT + file LICENSE
Encoding: UTF-8
LazyData: true
Roxygen: list(markdown = TRUE) ← documentation settings
```



```
Package: shinRa
Title: What the Package Does (One Line, Title
Case)
Version: 0.0.0.9000
Authors@R:
  person(given = "Malcolm",
          family = "Barrett",
          role = c("aut", "cre"),
          email = "malcolmbarrett@gmail.com")
Description: What the package does (one
paragraph).
License: MIT + file LICENSE
Encoding: UTF-8
→LazyData: true
Roxygen: list(markdown = TRUE)
```

add data



# Setting up git and GitHub



# Setting up git and GitHub

`use_git()`, `use_github()`



# Setting up git and GitHub

`use_git()`, `use_github()`

**`create_from_github()`** to clone



# Setting up git and GitHub

`use_git()`, `use_github()`

`create_from_github()` to clone

**`pr_init()` and friends** to do pull  
requests



# Setting up git and GitHub

`use_git()`, `use_github()`

`create_from_github()` to clone

`pr_init()` and friends to do pull  
requests

Other usethis functions for setting  
up GitHub, e.g. labels, issues,

