Cheatsheet: fast container builds for R 🚀

docker command line

Run container interactively

```
docker run -it \
namespace/repo:tag
```

Run rocker/rstudio container

```
docker run --rm -p 8787:8787 \
 -it -e PASSWORD=mypassword \
rocker/rstudio
```

Build from Dockerfile

```
docker build \
-t namespace/repo:tag .
```

Convenient R commands

Dockerfile from DESCRIPTION file

```
dockerfiler::dock_from_desc()
```

Package system requirements

```
pak::pkg_system_requirements(
    "DT", "ubuntu", "20.04")
```

Reducing image size
- Install2.r: `rm -rf /tmp/downloaded_packages`
- RSPM:
`strip /usr/local/lib/R/site-library/*/libs/*.so`
- apt-get: `rm -rf /var/lib/apt/lists/*`

Acknowledgements
Rocker and r2u are mainly developed
by Carl Boettiger and Dirk
Eddelbuettel. This cheatsheet was
created by Geert van Geest

Dockerfile examples

apt-get interacts with the system package manager, that usually includes R packages

```
FROM ubuntu

RUN apt-get update \
    && apt-get install -y \
    --no-install-recommends \
    r-cran-rmarkdown \
    r-cran-dt \
    r-bioc-biostrings
```

```
FROM r-base:latest

RUN apt-get update \
    && apt-get install -y \
    --no-install-recommends \
    r-cran-rmarkdown \
    r-cran-dt \
    r-bioc-biostrings
```

```
FROM rocker/rstudio:4

RUN install2.r \
    rmarkdown \
    DT
```

```
FROM rocker/r-bspm:f37

RUN R -e \
'install.packages("DT")'
```

```
FROM eddelbuettel/r2u:jammy

RUN install2.r \
    rmarkdown \
    DT Biostrings
```

Binary or **source** installation?
For most applications, a *binary installation is recommended*
It's faster and it's easier to handle dependencies.

install2.r/install.r scripts
Helpers for installing R packages (littler package). All options here.

fastest! 🏎️

🧬 : default bioconductor support

Choosing your base image

The base images below have many different characteristics. Refer to their specifications for a full overview.

	rocker				r2u
	Versioned	Base	rocker/r-ubuntu	rocker/r-bspm	eddelbuettel/r2u
apt-get install	No	Yes 🧬	Yes 🧬	Yes 🧬	Yes 🧬
repo install2.r or install.packages()	RSPM (binary)	CRAN (source)	CRAN (source)	package manager 🧬 (binary)	🧬 r2u (binary)
base image	ubuntu	debian	ubuntu	debian, ubuntu, fedora, opensuse	ubuntu

Build from R stack? → (yes) Shiny, Rstudio, ML or tidyverse? → (yes) Rocker versioned stack

Build from R stack? → (no) Install R and packages with package manager (e.g. apt)

Shiny, Rstudio, ML or tidyverse? → (no) Latest system libs? → (yes) Rocker base stack

Latest system libs? → (no) ubuntu OK? → (yes) eddelbuettel/r2u rocker/r-ubuntu

ubuntu OK? → (no) rocker/r-bspm

→ yes
→ no