

Creating Makefiles

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[GNU Make](#) is a standard tool to define transformation rules. Each rule consists of a (list of) targets which may depend on one or more source files, and optionally a script that needs to be executed to create the target. A Makefile is essentially a collection of such rules.

Make figures out automatically which files it needs to update, based on which source files have changed. ... As a result, if you change a few source files and then run Make, it does not need to [redo all the work]. It updates only those non-source files that depend directly or indirectly on the source files that you changed.

Make is readily available on all major platforms, also [on Microsoft Windows](#). The MakefileR package helps creating Makefile files programmatically from R. The following sections show a few examples and the corresponding output.

Creating rules

```
library(MakefileR)
make_rule("all", c("first_target", "second_target"))
```

```
all: first_target second_target
```

```
make_rule(".FORCE")
```

```
.FORCE:
```

```
make_rule("first_target", ".FORCE", "echo 'Building first target'")
```

```
first_target: .FORCE
→      echo 'Building first target'
```

```
make_rule("second_target", "first_target",
  c("echo 'Building second target'", "echo 'Done'"))
```

```

second_target: first_target
→      echo 'Building second target'
→      echo 'Done'

```

Creating definitions

```
make_def("R_VERSION", R.version.string)
```

```
R_VERSION=R version 3.2.3 (2015-12-10)
```

Creating groups

```

make_group(make_comment("Definitions")) +
  make_def("R_VERSION", R.version.string) +
  make_def("R_PLATFORM", R.version$platform)

```

```

# Definitions
R_VERSION=R version 3.2.3 (2015-12-10)
R_PLATFORM=x86_64-pc-linux-gnu

```

Creating Makefile files

```

makefile() +
  make_group(
    make_comment("Definitions"),
    make_def("R_VERSION", R.version.string)
  ) +
  make_group(
    make_comment("Universal rule"),
    make_rule("all", c("first_target", "second_target"))
  ) +
  make_group(
    make_comment("Special rule"),
    make_rule(".FORCE")
  ) +
  make_comment(c("=====", "Action rules", "=====")) +
  make_rule("first_target", ".FORCE", "echo 'Building first target'") +
  make_rule("second_target", "first_target",

```

```
c("echo 'Building second target'", "echo 'Done'"))
```

```
# Generated by MakefileR, do not edit by hand
```

```
# Definitions
```

```
R_VERSION=R version 3.2.3 (2015-12-10)
```

```
# Universal rule
```

```
all: first_target second_target
```

```
# Special rule
```

```
.FORCE:
```

```
# =====
```

```
# Action rules
```

```
# =====
```

```
first_target: .FORCE
```

```
→      echo 'Building first target'
```

```
second_target: first_target
```

```
→      echo 'Building second target'
```

```
→      echo 'Done'
```