

# How to run the **rodeo** examples

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## 1 Installation of R and auxiliary tools

Extensive help on the installation of R and related utilities can be found on <https://cran.r-project.org/doc/manuals/r-release/R-admin.html>. Please consult this document if the following short instructions are insufficient.

### 1.1 Install R

Make sure that you really need to install R. If this is the case (first install or upgrade from an old version), go to <https://cloud.r-project.org/> and follow the download links in the box at the top of the page. Linux users probably want to use a package manager instead.

### 1.2 Install auxiliary tools

Although the **rodeo** package itself does not need compilation, it requires the respective compile/build tools when it is used. This is because of **rodeo**'s built-in Fortran code generator. Before installing any tools, check whether this is necessary. For example, you could enter the command

```
gfortran --version
```

at a terminal. If this succeeds, i.e. shows a version info, the required tools may already be there. Otherwise, see below:

On a Linux system, one typically needs to install the GNU compiler collection, including **gfortran**. See the section 'Essential and useful other programs under a Unix-alike' on the web page mentioned at the top of Sec. 1.

Windows users need to install the so-called **Rtools** from <https://cran.r-project.org/bin/windows/Rtools>. Chose the version that is compatible with the installed R version. Please read the section 'The-Windows-toolset' (currently appendix D) on the web page mentioned at the top of Sec. 1 to circumvent typical pitfalls during and after installation. I recommend to install into a directory whose name does not contain blanks. If the automatic installer has an option to edit the PATH environment variable, let it do so.

## 2 After the installation

On Windows, make sure that the directory with the `Rtools` is listed at the very beginning of your `PATH` environment variable. The installation folder of `R` itself should also be included in `PATH`.

The two commands

```
gfortran --help
R --help
```

should work now when entered in a shell.

## 3 Installation of R-packages

The following packages are required to run the examples:

<code>rodeo</code>	The code generator
<code>deSolve</code>	Numerical solvers for differential equations
<code>readxl</code>	Reads spreadsheet data (.xlsx files)
<code>lhs</code>	Latin hypercube sampling methods

The packages are all available on CRAN (<https://cran.r-project.org/>) and installation is most conveniently done from within `R`, using

```
install.packages(c("rodeo", "deSolve", "readxl", "lhs"))
```

The installation may take some time because dependent packages are installed along with the above-mentioned ones.

The latest development version of `rodeo` can also be installed directly from the source code repository using the `devtools` package.

```
library("devtools")
install_github("dkneis/rodeo")
```