

# R meets JEdit

... yet another R editor ?

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# About me

## Experience with R

- ▶ Statistician
- ▶ R user for about 8 years
- ▶ Involved in development of several R packages
- ▶ Maintainer for R Graph Gallery  
<http://addictedtor.free.fr/graphiques>
- ▶ Professional R programmer at Mango Solutions (2006-2008)
- ▶ Independent R contractor since august 2008

### Background

features tour

Tree Display of code

Error/Warning list

Completion popups

Object browser

Debugger

# Jedit

## General information

- ▶ *open source (GPL) licencing model*
- ▶ *maintained by a core team*
- ▶ *plugin oriented*
- ▶ java (swing) based
- ▶ Maintained at Sourceforge
- ▶ <http://www.jedit.org/index.php>

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features tour

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# Features Tour

- ▶ Console
- ▶ Tree outline of source code
- ▶ Display of syntax errors and warnings
- ▶ Completion popups
- ▶ Synchronization
- ▶ Object Browser
- ▶ Debugger

## Background

### features tour

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# Features Tour - Tree display

Summarizes the source code in a tree display based on the output from the R parser

The screenshot shows the Jedit IDE interface with two main panes. The left pane displays R source code for a function `f` that creates a data frame `d`, defines a function `g`, and returns the sum of `g(d)` and a random uniform value. The right pane, titled 'Sidekick', shows a tree view of the code structure, where the function `f` is expanded to show its internal components: a data frame `d`, a function `g`, and the final expression `g0`.

```
f <- function() {  
  d <- data.frame(x = rnorm(10), y = rnorm(10) ).  
  g <- function() {  
    z <- 10.  
    browser().  
  }  
  g(d).  
  rnorm(10) + runif(10).  
}
```

Tree view structure:

- f <- function() {
  - d <- data.frame(x = morm(10), y = morm(10))
  - g <- function() {
    - z <- 10
  - g0  
rnorm(10) + runif(10)

# Features Tour - Error List

Provides visual integration of the codetools package.

The screenshot displays the RStudio interface. On the left, the 'R Objects Explorer' and 'File System Browser' are visible. The main editor shows an R script with the following code:

```
1 f <- function(){  
2   d <- data.frame( x = rnorm( 10 ), y = rnorm( 10 ) ).  
3   g <- function(){  
4     z <- 10.  
5     browser().  
6   }.  
7   g().  
8   rnorm( 10 ) + runif( 10 ).  
9 }.  
10 .
```

The code is highlighted in yellow. A tooltip points to line 3, stating: "local variable 'd' assigned but may not be used".

On the right, the 'Error List' panel shows the following message:

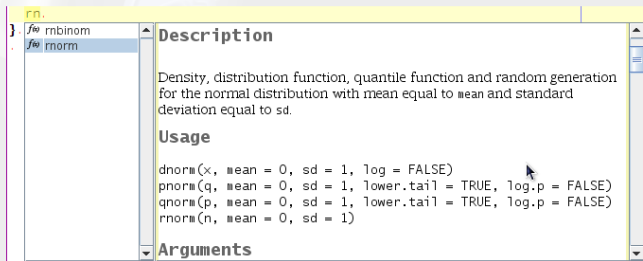
0 errors, 4 warnings

1 /tmp/f.R (0 errors, 4 warnings)

- 2: local variable 'd' assigned but may not be used
- 4: : g: local variable 'z' assigned but may not be used
- 2: local variable 'd' assigned but may not be used
- 4: : g: local variable 'z' assigned but may not be used

# Features Tour - Completion Popups (1)

## Completion Information - The R help system at your fingertips



rn.

- rbinom
- rnorm**

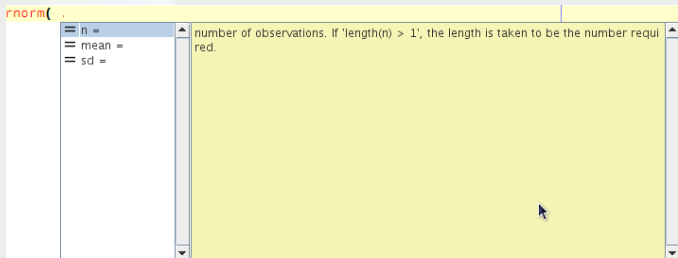
### Description

Density, distribution function, quantile function and random generation for the normal distribution with mean equal to `mean` and standard deviation equal to `sd`.

### Usage

```
dnorm(x, mean = 0, sd = 1, log = FALSE)
pnorm(q, mean = 0, sd = 1, lower.tail = TRUE, log.p = FALSE)
qnorm(p, mean = 0, sd = 1, lower.tail = TRUE, log.p = FALSE)
rnorm(n, mean = 0, sd = 1)
```

### Arguments



rnorm( .

- n =** number of observations. If 'length(n) > 1', the length is taken to be the number required.
- mean =
- sd =

# Features Tour - Completion Popups (1)

## Completion Information - Other helper completions for graphics

```
plot( col = "c
```

'blanchedalmond'
'blueviolet'
'brown'
'brown1'
'brown2'
'brown3'
'brown4'
'burlywood'
'burlywood1'
'burlywood2'
'burlywood3'
'burlywood4'
'chocolate'
'chocolate1'
'chocolate2'
'chocolate3'

```
rnorm( 10 ) + runif( 10 ).  
plot( pch = .
```

0
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21

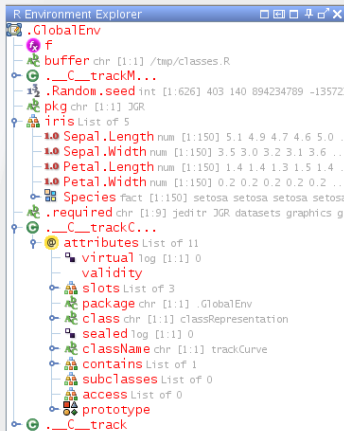
```
plot( lty = .
```

solid
dashed
longdash
blank
dotted
dotdash
twodash



# Features Tour - Object browser

## Object browser



The screenshot shows the R Environment Explorer window with the object browser expanded for the Global Environment. The tree structure is as follows:

- .GlobalEnv
  - f
  - buffer chr [1:1] /tmp/classes.R
  - .\_\_C\_\_trackM...
  - .Random.seed int [1:626] 403 140 894234789 -13572...
  - pkg chr [1:1] JGR
  - iris List of 5
    - 1.0 Sepal.Length num [1:150] 5.1 4.9 4.7 4.6 5.0 ..
    - 1.0 Sepal.Width num [1:150] 3.5 3.0 3.2 3.1 3.6 ..
    - 1.0 Petal.Length num [1:150] 1.4 1.4 1.3 1.5 1.4 ..
    - 1.0 Petal.Width num [1:150] 0.2 0.2 0.2 0.2 0.2 ..
    - Species fact [1:150] setosa setosa setosa setosa
  - .required chr [1:9] jeditr JGR datasets graphics g...
  - .\_\_C\_\_trackC...
  - attributes List of 11
    - virtual log [1:1] 0
    - validity
    - slots List of 3
    - package chr [1:1] .GlobalEnv
    - class chr [1:1] classRepresentation
    - sealed log [1:1] 0
    - className chr [1:1] trackCurve
    - contains List of 1
    - subclasses List of 0
    - access List of 0
    - prototype
  - .\_\_C\_\_track

# Features Tour - Debugger

Integrated Debugger - Visual display of the browser, debug, recover family

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Background

features tour

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```
R Environment Explorer  
GlobalEnv  
f  
g  
d List of 2  
 1.0 x num [1:10] 0.31865643518524556 -1.28220031161408  
 1.0 y num [1:10] 0.4537828154185007 -0.271170683743405  
g /tmp/f.R (line 7)  
 1.0 z num [1:1] 10.0
```

```
R  
R version 2.10.0 Under development (unstable) (2009-06-28 r48863)  
[1] -0.7082397 0.4633053 -0.5932645 0.4443142 -0.7434736 0.76437  
[7] -0.7580231 0.7266246 0.5318172 -1.1975237  
> f()  
Called from: g()  
Browse[1]>  
[1] -0.1278326 -0.1012720 1.2336558 -0.5255729 0.8687258 1.03603  
[7] 1.3849553 -0.7159431 0.9831469 1.6312043  
>  
> f  
function(){  
  d <- data.frame( x = rnorm( 10), y = rnorm( 10 ) )  
  g <- function(){  
    z <- 10  
    browser()  
  }  
  g()  
  rnorm( 10 ) + runif( 10 )  
}  
> f()  
Called from: g()  
Browse[1]>
```

7: Console Highlighter

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features tour

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R Environment Explorer

- .GlobalEnv
  - f
    - buffer chr [1:1] /tmp/f.R
    - .Random.seed int [1:626] 403 60 963719211 1603625545 227724120
    - pkg chr [1:1] JGR
    - .required chr [1:9] jeditr JGR datasets graphics grDevices ...
    - f
      - g
        - d List of 2
          - 1.0 x num [1:10] 0.4476403250024433 -1.0019049420109294 0.65618008853
          - 1.0 y num [1:10] 0.8136433327359675 -0.9889312168655032 1.57080338960
        - runif /tmp/f.R (line 7)
          - min
          - max
          - n

Console

R

```
R version 2.10.0 Under development (unstable) (2009-06-05)

> debug( runif )
> f
function(){
  d <- data.frame( x = rnorm( 10), y = rnorm( 10 ) )
  g <- function(){
    z <- 10
  }
  g()
  rnorm( 10 ) + runif( 10 )
}
> f()
debugging in: runif(10)
debug: .Internal(runif(n, min, max))
Browse[2]>
```

# Future Features

- ▶ *Package Developer, builder, installer*
- ▶ *Unit test integration*
- ▶ *Profiler*
- ▶ *Data editor*
- ▶ *Support for Sweave*
- ▶ *Integrated and Resource aware help system*

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**Debugger**



# Questions ?

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