

# Package ‘doParallel’

October 16, 2020

**Type** Package

**Title** Foreach Parallel Adaptor for the 'parallel' Package

**Version** 1.0.16

**Description** Provides a parallel backend for the `%dopar%` function using the parallel package.

**Depends** R (>= 2.14.0), foreach(>= 1.2.0), iterators(>= 1.0.0), parallel, utils

**Suggests** caret, mlbench, rpart, RUnit

**Enhances** compiler

**License** GPL-2

**NeedsCompilation** no

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**Date/Publication** 2020-10-16 06:20:10 UTC

## R topics documented:

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doParallel-package      *The doParallel Package*

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### Description

The doParallel package provides a parallel backend for the `foreach/%dopar%` function using the parallel package of R 2.14.0 and later.

### Details

Further information is available in the following help topics:

`registerDoParallel`    `register doParallel` to be used by `foreach/%dopar%`

To see a tutorial introduction to the doParallel package, use `vignette("gettingstartedParallel")`.

To see a tutorial introduction to the foreach package, use `vignette("foreach")`.

To see a demo of doParallel computing the sinc function, use `demo(sincParallel)`.

Some examples (in addition to those in the help pages) are included in the “examples” directory of the doParallel package. To list the files in the examples directory, use `list.files(system.file("examples", package="doParallel"))`.

To run the bootstrap example, use `source(system.file("examples", "bootParallel.R", package="doParallel"))`.

This is a simple benchmark, executing both sequentially and in parallel. There are many more examples that come with the foreach package, which will work with the doParallel package if it is registered as the parallel backend.

For a complete list of functions with individual help pages, use `library(help="doParallel")`.

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`registerDoParallel`      *registerDoParallel*

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### Description

The `registerDoParallel` function is used to register the parallel backend with the foreach package.

### Usage

```
registerDoParallel(cl, cores=NULL, ...)
stopImplicitCluster()
```

### Arguments

`cl`                    A cluster object as returned by `makeCluster`, or the number of nodes to be created in the cluster. If not specified, on Windows a three worker cluster is created and used.

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|-------|---|
| cores | The number of cores to use for parallel execution. If not specified, the number of cores is set to the value of <code>options("cores")</code> , if specified, or to one-half the number of cores detected by the <code>parallel</code> package. |
| ...   | Package options. Currently, only the <code>nocompile</code> option is supported. If <code>nocompile</code> is set to <code>TRUE</code> , compiler support is disabled.  |

## Details

The `parallel` package from R 2.14.0 and later provides functions for parallel execution of R code on machines with multiple cores or processors or multiple computers. It is essentially a blend of the `snow` and `multicore` packages. By default, the `doParallel` package uses `snow`-like functionality. The `snow`-like functionality should work fine on Unix-like systems, but the `multicore`-like functionality is limited to a single sequential worker on Windows systems. On workstations with multiple cores running Unix-like operating systems, the `system fork` call is used to spawn copies of the current process.

The `doParallel` backend supports both `multicore` and `snow` options passed through the `foreach` function. The supported `multicore` options are `preschedule`, `set.seed`, `silent`, and `cores`, which are analogous to the similarly named arguments to `mclapply`, and are passed using the `.options.multicore` argument to `foreach`. The supported `snow` options are `preschedule`, which like its `multicore` analog can be used to chunk the tasks so that each worker gets a prescheduled chunk of tasks, and `attachExportEnv`, which can be used to attach the export environment in certain cases where R's lexical scoping is unable to find a needed export. The `snow` options are passed to `foreach` using the `.options.snow` argument.

The function `stopImplicitCluster` can be used in vignettes and other places where it is important to explicitly close the implicitly created cluster.

## Examples

```
c1 <- makePSOCKcluster(2)
registerDoParallel(c1)
m <- matrix(rnorm(9), 3, 3)
foreach(i=1:nrow(m), .combine=rbind)
stopCluster(c1)
```

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