

Package ‘ssh.utils’

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Title Local and remote system commands with output and error capture.

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Author Sergei Izrailev

Maintainer Sergei Izrailev <sizrailev@collective.com>

Description This package provides utility functions for system command execution, both locally and remotely using ssh/scp. The command output is captured and provided to the caller. This functionality is intended to streamline calling shell commands from R, retrieving and using their output, while instrumenting the calls with appropriate error handling. NOTE: this first version is limited to unix with local and remote systems running bash as the default shell.

URL <http://github.com/collectivemedia/ssh.utils>

Depends R (>= 3.0.3),stringr

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LazyData true

OS_type unix

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cp.remote

scp wrapper

Description

A wrapper around the scp shell command that handles local/remote files and allows copying between remote hosts via the local machine.

Usage

```
cp.remote(remote.src, path.src, remote.dest, path.dest, verbose = FALSE,
          via.local = FALSE, local.temp.dir = tempdir())
```

Arguments

remote.src	Remote machine for the source file in the format <code>user@machine</code> or an empty string for local.
path.src	Path of the source file.
remote.dest	Remote machine for the destination file in the format <code>user@machine</code> or an empty string for local.
path.dest	Path for the source file; can be a directory.
verbose	Prints elapsed time if TRUE
via.local	Copies the file via the local machine. Useful when two remote machines can't talk to each other directly.
local.temp.dir	When copying via local machine, the directory to use as scratch space.

Examples

```
## Not run:
## Copy file myfile.csv from the home directory on the remote server to
## the local working directory.

## on remote server in bash shell:
# cat myfile.csv
# [me@myserver ~]$ cat myfile.csv
# "val", "ts"
# 1,
# 2,
# 3,
# 4,
# 5,
# 6,
# 7,
# 8,
# 9,
# 10,

## on local server in R:
cp.remote(remote.src = "me@myserver", path.src = "~/myfile.csv",
          remote.dest = "", path.dest = getwd(), verbose = TRUE)
```

```
# [1] "Elapsed: 1.672 sec"
df <- read.csv("myfile.csv")
df
#      val ts
# 1      1 NA
# 2      2 NA
# 3      3 NA
# 4      4 NA
# 5      5 NA
# 6      6 NA
# 7      7 NA
# 8      8 NA
# 9      9 NA
# 10     10 NA

## End(Not run)
```

file.exists.remote *Checks if a local or remote file exists.*

Description

A wrapper around a bash script. Works with local files too if remote="".

Usage

```
file.exists.remote(file, remote = "")
```

Arguments

file	File path.
remote	Remote machine specification for ssh, in format such as user@server that does not require interactive password entry. For local execution, pass an empty string "" (default).

Value

TRUE or FALSE indicating whether the file exists.

Examples

```
## Not run:
file.exists.remote("~/myfile.csv", remote = "me@myserver")
# [1] TRUE

## End(Not run)
```

mem.usage	<i>Measure the resident memory usage of a process.</i>
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Description

Returns the memory usage in KB of a process with the specified process id. By default, returns the memory usage of the current R process. This can be used to measure and log the memory usage of the R process during script execution.

Usage

```
mem.usage(pid = Sys.getpid())
```

Arguments

pid Process ID (default is the current process id).

Value

The resident memory usage in KB.

Examples

```
## Not run:
mem.usage()
# [1] 37268

## End(Not run)
```

mkdir.remote	<i>Creates a remote directory with the specified group ownership and permissions.</i>
--------------	---

Description

If the directory already exists, attempts to set the group ownership to the user.group. The allowed group permissions are one of c("g+rx", "g+rx", "go-w", "go-rwx"), or "-". The value "-" means "don't change permissions".

Usage

```
mkdir.remote(path, user.group = NULL, remote = "",
  permissions = c("g+rx", "g+rx", "go-w", "go-rwx", "-"))
```

Arguments

<code>path</code>	Directory path. If using <code>remote</code> , this should be a full path or a path relative to the user's home directory.
<code>user.group</code>	The user group. If <code>NULL</code> , the default group is used.
<code>remote</code>	Remote machine specification for <code>ssh</code> , in format such as <code>user@server</code> that does not require interactive password entry. For local execution, pass an empty string <code>""</code> (default).
<code>permissions</code>	The group permissions on the directory. Default is <code>'rwx'</code> .

Note

This may not work on Windows.

<code>ps.grep.remote</code>	<i>Checks for processes running on a local or remote machine.</i>
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Description

One of the use cases for this function is to ensure that an R process is already running and not start another one accidentally.

Usage

```
ps.grep.remote(grep.string, remote, stop.if.any = FALSE,
  stop.if.none = FALSE, count.self = FALSE, ps.options = "aux")
```

Arguments

<code>grep.string</code>	String(s) to check for in <code>ps</code> . If a vector, runs a chain of piped <code>grep</code> commands for each string.
<code>remote</code>	Remote machine specification for <code>ssh</code> , in format such as <code>user@server</code> that does not require interactive password entry. For local execution, pass an empty string <code>""</code> (default).
<code>stop.if.any</code>	Stop if any of <code>grep.string</code> is running
<code>stop.if.none</code>	Stop if none of <code>grep.string</code> is running
<code>count.self</code>	When <code>FALSE</code> , excludes the calling process name from the count, if it gets matched.
<code>ps.options</code>	Gives the ability to run different options to <code>ps</code> .

Note

This may not work on Windows.

See Also

`run.remote`

Examples

```
## Not run:
# Check if Eclipse is running.
ps.grep.remote("Eclipse", remote = "")
# [1] TRUE

## End(Not run)
```

run.remote

Functions to run commands remotely via ssh and capture output.

Description

run.withwarn - Evaluates the expression (e.g. a function call) and returns the result with additional attributes:

- num.warnings - number of warnings occurred during the evaluation
- last.message - the last warning message

Otherwise, run.withwarn is similar to base::suppressWarnings

run.remote - Runs the command locally or remotely using ssh.

Usage

```
run.withwarn(expr)
```

```
run.remote(cmd, remote = "", intern = T, stderr.redirect = T,
  verbose = F)
```

Arguments

expr	Expression to be evaluated.
cmd	Command to run. If run locally, quotes should be escaped once. If run remotely, quotes should be escaped twice.
remote	Remote machine specification for ssh, in format such as user@server that does not require interactive password entry. For local execution, pass an empty string "" (default).
intern	Useful for debugging purposes: if there's an error in the command, the output of the remote command is lost. Re-running with intern=FALSE causes the output to be printed to the console. Normally, we want to capture output and return it.
stderr.redirect	When TRUE appends 2>&1 to the command. Generally, one should use that to capture STDERR output with intern=TRUE, but this should be set to FALSE if the command manages redirection on its own.
verbose	When TRUE prints the command.

Details

In `run.remote` the remote commands are enclosed in wrappers that allow to capture output. By default `stderr` is redirected to `stdout`. If there's a genuine error, e.g., the remote command does not exist, the output is not captured. In this case, one can see the output by setting `intern` to `FALSE`. However, when the command is run but exits with non-zero code, `run.remote` intercepts the generated warning and saves the output.

The remote command will be put inside double quotes twice, so all quotes in `cmd` must be escaped twice: `\\`". However, if the command is not remote, i.e., `remote` is `NULL` or empty string, quotes should be escaped only once.

If the command itself redirects output, the `stderr.redirect` flag should be set to `FALSE`.

Value

`run.remote` returns a list containing the results of the command execution, error codes and messages.

- `cmd.error` - flag indicating if a warning was issued because command exited with non-zero code
- `cmd.out` - the result of the command execution. If there was no error, this contains the output as a character array, one value per line, see [system](#). If there was an error (as indicated by `cmd.error`), this most likely contains the error message from the command itself. The `elapsed.time` attribute contains the elapsed time for the command in seconds.
- `warn.msg` - the warning message when `cmd.error` is `TRUE`.

Warnings are really errors here so the error flag is set if there are warnings.

Additionally, `cmd.out` has the `elapsed.time`, `num.warnings` and, if the number of warnings is greater than zero, `last.warning` attributes.

Examples

```
## Not run:
## Error handling:
remote = ""
command = "ls /abcde"
res <- run.remote(cmd=command, remote=remote)
if (res$cmd.error)
{
  stop(paste(paste(res$cmd.out, collapse="\n"), res$warn.msg, sep="\n"))
}
# Error: ls: /abcde: No such file or directory
# running command 'ls /abcde 2>&1 ' had status 1

## Fetching result of a command on a remote server

# Get the file size in bytes
res <- run.remote("ls -la myfile.csv | awk '{print \$5;}'", remote = "me@myserver")
res
# $cmd.error
# [1] FALSE
#
# $cmd.out
# [1] "42"
# attr(,"num.warnings")
```

```
# [1] 0
# attr(,"elapsed.time")
# elapsed
# 1.063
#
# $warn.msg
# NULL

file.length <- as.integer(res$cmd.out)

## End(Not run)
```

ssh.utils

Local and remote system commands with output and error capture.

Description

Package `ssh.utils` provides utility functions for system command execution, both locally and remotely using `ssh/scp`. The command output is captured and provided to the caller. This functionality is intended to streamline calling shell commands from R, retrieving and using their output, while instrumenting the calls with appropriate error handling. NOTE: this first version is limited to unix with local and remote systems running bash as the default shell.

OS_type

unix

Maintainer

Sergei Izrailev

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URL

<http://github.com/collectivemedia/ssh.utils>

Installation from github

```
devtools::install_github("collectivemedia/ssh.utils")
```

Author(s)

Sergei Izrailev

See Also

[run.remote](#), [cp.remote](#), [file.exists.remote](#), [mkdir.remote](#), [ps.grep.remote](#), [mem.usage](#)

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