

Package ‘condor’

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Title Interact with 'Condor' from R via SSH

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Description Interact with 'Condor' from R via SSH connection. Files are first uploaded from user machine to submitter machine, and the job is then submitted from the submitter machine to 'Condor'. Functions are provided to submit, list, and download 'Condor' jobs from R. 'Condor' is an open source high-throughput computing software framework for distributed parallelization of computationally intensive tasks.

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URL <https://github.com/PacificCommunity/ofp-sam-condor>,
<https://htcondor.org>

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condor-package	<i>Interact with Condor from R via SSH</i>
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Description

Interact with Condor from R via SSH connection. Files are first uploaded from user machine to submitter machine, and the job is then submitted from the submitter machine to Condor. Functions are provided to submit, list, and download Condor jobs from R.

Condor is an open source high-throughput computing software framework for distributed parallelization of computationally intensive tasks.

Details

Main interface:

condor_submit	submit
condor_q	list queue
condor_dir	list directories
condor_download	download

Stop and remove:

condor_rm	stop jobs
condor_rmdir	remove directories

Utilities:

condor_log	show log file
dos2unix	convert line endings
summary.condor_log	show log file summary
ssh_exec_stdout	execute command
unix2dos	convert line endings

Author(s)

Arni Magnusson and Nan Yao, with contributions by Jemery Day and Thomas Teears.

References

<https://github.com/PacificCommunity/ofp-sam-condor>
<https://htcondor.org>

See Also

condor uses the **ssh** package to connect to the Condor submitter machine.

condor_dir	<i>Condor Directories</i>
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Description

List Condor run directories, either on submitter machine or on a local drive.

Usage

```
condor_dir(top.dir = "condor", local.dir = NULL, pattern = "*",  
report = TRUE, sort = "job.id", session = NULL, ...)
```

Arguments

top.dir	top directory on submitter machine that contains Condor run directories.
local.dir	local directory to examine instead of top.dir.
pattern	regular expression identifying which run directories to show. The default is to show all directories inside top.dir or local.dir.
report	whether to return a detailed report of the run status in each directory.
sort	column name or column number used to sort the report data frame.
session	optional object of class ssh_connect.
...	passed to grep .

Details

If the user passes top.dir that resembles a Windows local directory (drive letter, colon, forward slash), it is automatically interpreted as a local.dir. In other words, condor_dir("c:/myruns") and condor_dir(local.dir="c:/myruns") are equivalent.

The default value of session = NULL looks for a session object in the user workspace. This allows the user to run Condor functions without explicitly specifying the session.

Value

A data frame containing details about each directory, or if report = FALSE a character vector of directory names.

Note

If there are many Condor run directories, the report generation can take substantial time (one SSH execution per run directory). To quickly return a vector of directory names, pass `report = FALSE`.

Author(s)

Arni Magnusson.

See Also

[condor_submit](#), [condor_q](#), [condor_dir](#), and [condor_download](#) provide the main Condor interface.

[condor_rm](#) stops Condor jobs and [condor_rmdir](#) removes directories on the submitter machine.

[condor_log](#) and [summary.condor_log](#) are called to produce the detailed report if `report = TRUE`.

[condor-package](#) gives an overview of the package.

Examples

```
## Not run:

# General workflow
session <- ssh_connect("servername")

condor_submit()
condor_q()
condor_dir()
condor_download() # after job has finished

# Alternatively, examine runs on local drive
condor_dir(local.dir="myruns")
condor_dir("c:/myruns")

## End(Not run)
```

condor_download	<i>Condor Download</i>
-----------------	------------------------

Description

Download results from a Condor job.

Usage

```
condor_download(run.dir = NULL, local.dir = ".", top.dir = "condor",
  create.dir = FALSE, pattern = "End.tar.gz|condor.*(err|log|out)$",
  overwrite = FALSE, untar.end = TRUE, session = NULL)
```

Arguments

<code>run.dir</code>	name of a Condor run directory inside <code>top.dir</code> .
<code>local.dir</code>	local directory to download to.
<code>top.dir</code>	top directory on submitter machine that contains Condor run directories.
<code>create.dir</code>	whether to create <code>local.dir</code> if it does not exist.
<code>pattern</code>	regular expression identifying which result files to download. Passing <code>pattern="*"</code> will download all files.
<code>overwrite</code>	whether to overwrite local files if they already exist.
<code>untar.end</code>	whether to extract <code>End.tar.gz</code> into <code>local.dir</code> after downloading. (Ignored if a file named 'End.tar.gz' was not downloaded.)
<code>session</code>	optional object of class <code>ssh_connect</code> .

Details

The default value of `run.dir = NULL` looks for Condor job results in `top.dir/local.dir`. For example, if `local.dir = "c:/yft/run01"` then the default `run.dir` becomes `"condor/run01"`.

The default value of `pattern="End.tar.gz|condor.*(err|log|out)$"` downloads `End.tar.gz` and Condor log files. For many analyses, it can be convenient to pack all results into `End.tar.gz` to make it easy to find, download, and manage output files.

The default value of `session = NULL` looks for a session object in the user workspace. This allows the user to run Condor functions without explicitly specifying the session.

Value

No return value, called for side effects.

Author(s)

Arni Magnusson.

See Also

[condor_submit](#), [condor_q](#), [condor_dir](#), and [condor_download](#) provide the main Condor interface.

[condor_rm](#) stops Condor jobs and [condor_rmdir](#) removes directories on the submitter machine.

[condor-package](#) gives an overview of the package.

Examples

```
## Not run:

# General workflow
session <- ssh_connect("servername")

condor_submit()
condor_q()
```

```

condor_dir()
condor_download() # after job has finished

# Alternatively, download specific run to specific folder
condor_download("01_this_model", "c:/myruns/01_this_model")

## End(Not run)

```

condor_log

Condor Log

Description

Show Condor log file from a run directory, either on submitter machine or on a local drive.

Usage

```
condor_log(run.dir = ".", top.dir = "condor", local.dir = NULL,
          session = NULL)
```

Arguments

run.dir	name of a Condor run directory inside top.dir.
top.dir	top directory on submitter machine that contains Condor run directories.
local.dir	local directory to examine instead of <i>top.dir/run.dir</i> .
session	optional object of class ssh_connect.

Details

The default value of session = NULL looks for a session object in the user workspace. This allows the user to run Condor functions without explicitly specifying the session.

Value

Log file contents as an object of class condor_log.

The condor_log class is simply a "character" vector with a print.condor_log method.

Author(s)

Arni Magnusson.

See Also

[summary.condor_log](#) shows Condor log file summary.

[condor_dir](#) lists Condor directories.

[condor-package](#) gives an overview of the package.

Examples

```
## Not run:

# Examine log files on submitter machine
session <- ssh_connect("servername")

condor_dir()
condor_log()
summary(condor_log())

# Alternatively, examine log file on local drive
condor_dir(local.dir="c:/myruns")
condor_log(local.dir="c:/myruns/01_this_model")
summary(condor_log(local.dir="c:/myruns/01_this_model"))

## End(Not run)
```

condor_q

Condor Queue

Description

List the Condor job queue.

Usage

```
condor_q(all = FALSE, count = FALSE, global = FALSE, user = "",
  session = NULL)

condor_qq(all = TRUE, count = TRUE, global = TRUE, user = "",
  session = NULL)
```

Arguments

<code>all</code>	whether to list jobs from all users.
<code>count</code>	whether to only show the number of jobs.
<code>global</code>	whether to list jobs submitted from all submitter machines.
<code>user</code>	username to list jobs submitted by a given user.
<code>session</code>	optional object of class <code>ssh_connect</code> .

Details

The default value of `session = NULL` looks for a session object in the user workspace. This allows the user to run Condor functions without explicitly specifying the session.

Value

Screen output from the condor_q shell command, or a table if count = TRUE.

Note

The condor_q R function has the same defaults as the condor_q shell command, listing only jobs that were submitted by the current user from the current submitter machine.

The condor_qq alternative is the same function but with different default argument values, convenient for a *quick* overview of the *queue*.

Author(s)

Arni Magnusson.

See Also

[condor_submit](#), [condor_q](#), [condor_dir](#), and [condor_download](#) provide the main Condor interface.

[condor_rm](#) stops Condor jobs and [condor_rmdir](#) removes directories on the submitter machine.

[condor-package](#) gives an overview of the package.

Examples

```
## Not run:

# General workflow
session <- ssh_connect("servername")

condor_submit()
condor_q()
condor_dir()
condor_download() # after job has finished

# Alternatively, list number of jobs being run by each user
condor_q(all=TRUE, count=TRUE)

## End(Not run)
```

condor_rm

Condor Remove

Description

Stop Condor jobs.

Usage

```
condor_rm(job.id = NULL, all = FALSE, top.dir = "condor",
          session = NULL)
```

Arguments

<code>job.id</code>	a vector of integers or directory names, indicating Condor jobs to stop.
<code>all</code>	whether to stop all Condor jobs owned by user.
<code>top.dir</code>	top directory on submitter machine that contains Condor run directories.
<code>session</code>	optional object of class <code>ssh_connect</code> .

Details

The `top.dir` argument only has an effect when `job.id` is a vector of directory names. For example, `condor_rm("01_this")` will stop the Condor job corresponding to directory `condor/01_this` on the submitter machine.

The default value of `session = NULL` looks for a session object in the user workspace. This allows the user to run Condor functions without explicitly specifying the session.

Value

No return value, called for side effects.

Author(s)

Nan Yao and Arni Magnusson.

See Also

[condor_submit](#), [condor_q](#), [condor_dir](#), and [condor_download](#) provide the main Condor interface.

`condor_rm` stops Condor jobs and [condor_rmdir](#) removes directories on the submitter machine.

[condor-package](#) gives an overview of the package.

Examples

```
## Not run:

# General workflow
session <- ssh_connect("servername")

condor_submit()
condor_q()
condor_dir()
condor_download() # after job has finished

# Stop one or multiple jobs
condor_rm(123456)           # stop one job (integer)
```

```

condor_rm(c(123456, 123789))      # stop two jobs (integers)
condor_rm("01_this")              # stop one job (dirname)
condor_rm(c("01_this", "02_that")) # stop two jobs (dirname)
condor_rm(all=TRUE)              # stop all jobs

## End(Not run)

```

condor_rmdir	<i>Condor Remove Directory</i>
--------------	--------------------------------

Description

Remove directories on the submitter machine.

Usage

```
condor_rmdir(run.dir, top.dir = "condor", quiet = FALSE, session = NULL)
```

Arguments

run.dir	name of a Condor run directory inside top.dir.
top.dir	top directory on submitter machine that contains Condor run directories.
quiet	whether to suppress messages.
session	optional object of class ssh_connect.

Details

The default value of session = NULL looks for a session object in the user workspace. This allows the user to run Condor functions without explicitly specifying the session.

Value

No return value, called for side effects.

Author(s)

Arni Magnusson.

See Also

[condor_submit](#), [condor_q](#), [condor_dir](#), and [condor_download](#) provide the main Condor interface.

[condor_rm](#) stops Condor jobs and [condor_rmdir](#) removes directories on the submitter machine.

[condor-package](#) gives an overview of the package.

Examples

```
## Not run:

# General workflow
session <- ssh_connect("servername")

condor_submit()
condor_q()
condor_dir()
condor_download() # after job has finished

# Remove one or more directories
condor_rmdir("01_this")           # remove ~/condor/01_this (one run)
condor_rmdir(c("01_this", "02_that")) # remove two model runs inside condor
condor_rmdir("test_runs", top.dir=".") # remove ~/my_runs (many subdirs)

## End(Not run)
```

condor_submit

Condor Submit

Description

Submit a Condor job.

Usage

```
condor_submit(local.dir = ".", run.dir = NULL, top.dir = "condor",
  unix = "\\sh$", exclude = "condor_mfcl|tar.gz|End", session = NULL)
```

Arguments

local.dir	local directory containing a Condor *.sub file and any other files necessary to run the job.
run.dir	name of a Condor run directory to create inside top.dir.
top.dir	top directory on submitter machine that contains Condor run directories.
unix	pattern identifying files in local.dir that should have Unix line endings.
exclude	pattern identifying files in local.dir that should not be submitted to Condor.
session	optional object of class ssh_connect.

Details

The default value of run.dir = NULL runs the Condor job in *top.dir/local.dir*. For example, if local.dir = "c:/yft/run01" then the default run.dir becomes "condor/run01".

It can be practical to organize Condor runs inside the default `top.dir = "condor"` directory, to keep Condor runs separate from other directories inside the user home. To organize Condor runs directly in the home folder on the submitter machine, pass `top.dir = ""`.

The default value of `unix = "\.sh$"` ensures that shell scripts with a `‘.sh’` file extension have Unix line endings. Pass `FALSE` to disable conversion of line endings.

The default value of `session = NULL` looks for a session object in the user workspace. This allows the user to run Condor functions without explicitly specifying the session.

Value

Remote directory name with the job id as a name attribute.

Note

This function performs two core tasks: (1) upload files from `local.dir` to submitter machine, and (2) execute shell command `condor_submit` on submitter machine to launch the Condor job.

Author(s)

Arni Magnusson.

See Also

`condor_submit`, [condor_q](#), [condor_dir](#), and [condor_download](#) provide the main Condor interface.

[condor_rm](#) stops Condor jobs and [condor_rmdir](#) removes directories on the submitter machine.

[dos2unix](#) converts line endings.

[condor-package](#) gives an overview of the package.

Examples

```
## Not run:

# General workflow
session <- ssh_connect("servername")

condor_submit()
condor_q()
condor_dir()
condor_download() # after job has finished

# Alternatively, submit a specific run
condor_submit("c:/myruns/01_this_model")

## End(Not run)
```

`dos2unix`*Convert Line Endings*

Description

Convert line endings in a text file between Dos (CRLF) and Unix (LF) format.

Usage

```
dos2unix(file, force = FALSE)
```

```
unix2dos(file, force = FALSE)
```

Arguments

`file` a filename.

`force` whether to proceed with the conversion when the file is not a standard text file.

Details

The default value of `force = FALSE` is a safety feature that can avoid corrupting files that are not standard text files, such as binary files. A standard text file is one that can be read using [readLines](#) without producing warnings.

Value

No return value, called for side effects.

Author(s)

Arni Magnusson.

See Also

[condor_submit](#) calls `dos2unix` to convert the line endings of shell scripts.

[condor-package](#) gives an overview of the package.

Examples

```
## Not run:  
file <- "test.txt"  
write("123", file)
```

```
dos2unix(file)  
file.size(file)
```

```
unix2dos(file)  
file.size(file)
```

```
file.remove(file)

## End(Not run)
```

`ssh_exec_stdout`*Execute and Capture Standard Output*

Description

Call `ssh_exec_internal` and convert the standard output to characters.

Usage

```
ssh_exec_stdout(command, session = NULL, ...)
```

Arguments

<code>command</code>	command or script to execute.
<code>session</code>	optional object of class <code>ssh_connect</code> .
<code>...</code>	passed to ssh_exec_internal .

Details

The default value of `session = NULL` looks for a session object in the user workspace. This allows the user to run Condor functions without explicitly specifying the session.

Value

A "character" vector containing the standard output.

Author(s)

Arni Magnusson.

See Also

[ssh_exec_wait](#) runs a command or script and shows the standard output in the R console, while returning the exit status.

[ssh_exec_internal](#) runs a command or script and buffers the standard output into a raw vector.

[condor-package](#) gives an overview of the package.

Examples

```
## Not run:
session <- ssh_connect("servername")

ssh_exec_wait(session, "ls")           # returns 0
ssh_exec_internal(session, "ls")$stdout # returns a raw vector
ssh_exec_stdout("ls")                  # returns directory names

## End(Not run)
```

summary.condor_log	<i>Summary Condor Log</i>
--------------------	---------------------------

Description

Produce a summary of a Condor log file.

Usage

```
## S3 method for class 'condor_log'
summary(object, ...)
```

Arguments

object	an object of class condor_log .
...	passed to round.

Value

Data frame with the following columns:

job.id	job id.
status	text indicating whether job status is submitted, executing, aborted, or finished.
submit.time	date and time when job was submitted.
runtime	total duration of a job.
disk	disk space used by job (MB).
memory	memory used by job (MB).

Author(s)

Arni Magnusson.

See Also

[condor_log](#) shows Condor log file.
[condor-package](#) gives an overview of the package.

Examples

```
## Not run:

# Examine log files on submitter machine
session <- ssh_connect("servername")

condor_dir()
condor_log()
summary(condor_log())

#' # Alternatively, examine log files on local drive
condor_dir(local.dir="c:/myruns")
condor_log(local.dir="c:/myruns/01_this_model")
summary(condor_log(local.dir="c:/myruns/01_this_model"))

## End(Not run)
```


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