

Package ‘SmoothR’

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Title Manage R Sessions while using SLURM repetitively

Version 0.0.0.9000

Description Manage R Sessions while using SLURM repetitively

License GPL-3

Imports dplyr,
lubridate,
sessioninfo,
lintr

Suggests testthat

Encoding UTF-8

LazyData true

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AddFat	<i>Add or Update FAT Configuration</i>
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Description

Adds or updates the FAT setting in the configuration file. It validates and accepts only 'T', 'F', 't', 'f' as values. If no value is provided, the current configuration is printed.

Usage

```
AddFat(fat_value = NULL)
```

Arguments

fat_value	Optional character indicating the FAT setting ('T', 'F', 't', 'f'); default NULL.
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checkDir	<i>Change Working Directory or Verify Current Directory</i>
----------	---

Description

Verifies if the specified 'output_dir' exists and changes the working directory to it. Throws an error if the directory does not exist or does not match the current directory.

Usage

```
checkDir(output_dir)
```

Arguments

output_dir	The target directory to validate or change to.
------------	--

checkpoint	<i>Print Custom Checkpoint Message in SLURM Output</i>
------------	--

Description

Outputs a checkpoint message with a user-defined comment. Useful for tracking progress in non-interactive SLURM tasks.

Usage

```
checkpoint(comment)
```

Arguments

comment	A character string for the checkpoint comment.
---------	--

Value

Prints to the console; returns invisible NULL.

Examples

```
checkpoint("Data loaded successfully")
checkpoint("Model training started")
```

CopyRunSmoothRScript *Copy runSmoothR.sh Script to a Specified Directory*

Description

This function copies the 'runSmoothR.sh' script from the 'shell_helpers' folder of the package to a specified folder.

Usage

```
CopyRunSmoothRScript(dest_folder)
```

Arguments

dest_folder The destination folder where the script will be copied.

InitNow *Initialize Session After Slurm Execution*

Description

Loads a specified R session file. Aborts if run interactively or if the session file does not exist. Continues without loading if the file is missing.

Usage

```
InitNow()
```

Arguments

session_file_name
The name of the session file to load, defaults to the first command line argument with ".RData" appended.

Examples

```
InitNow()
```

InitSmoothR

Activate runSmoothR.sh by Copying and Adding to \$PATH

Description

This function copies 'runSmoothR.sh' to a specified directory and adds the directory to the \$PATH variable by updating the appropriate shell configuration file, only if the path is not already present.

Usage

```
InitSmoothR(force = F)
```

print_args

Print Command Line Arguments

Description

This function prints all command line arguments provided to the R script when run from the command line. It will not execute in interactive sessions to ensure it is used specifically for command-line operations.

Usage

```
print_args()
```

Value

Prints each command-line argument passed to the script; returns invisible NULL in interactive mode.

QuitNow

Quit R Session when not Interactive

Description

Terminates the current R session non-interactively with a success status. Useful in scripts and batch processing. Does not save the session before exiting. Precede with SaveNow() to save data first.

Usage

```
QuitNow()
```

Examples

```
QuitNow()
```

ReadFromConfig	<i>Read Configuration Values from a File</i>
----------------	--

Description

Retrieves a specific configuration value by key from a file formatted as 'export KEY=VALUE'. Throws an error if the key is not found or if the file does not exist.

Usage

```
ReadFromConfig(key_to_check)
```

Arguments

key_to_check	The configuration key to retrieve.
config_file	Path to the configuration file, defaults to '~/.temp_shell_exports'.

Value

The value associated with the provided key.

RunNow	<i>Run a R script and submit it to Slurm for execution.</i>
--------	---

Description

This function runs a R script and submits it to Slurm for execution.

Usage

```
RunNow(script_name, output_file = NULL, lint = FALSE, verbose = FALSE)
```

Arguments

script_name	The name of the R script to run.
output_file	The name of the output file.
lint	Whether to lint the script instead of running it.
verbose	Whether to print verbose output.

Value

NA

SafeExecute*Safely Evaluate Expressions with Optional Logging*

Description

Evaluates an expression while handling errors and warnings to prevent unexpected script termination. If enabled, captures and logs messages, warnings, and errors to a file, facilitating smooth operation in production or critical scripts requiring uninterrupted execution.

Usage

```
SafeExecute(
  expr,
  logging = FALSE,
  log_file = "R_console_log_file.log",
  envir = parent.frame()
)
```

Arguments

<code>expr</code>	Expression to evaluate, which can range from a single command to a block of code.
<code>logging</code>	Boolean; enables logging of all runtime messages, warnings, and errors when set to TRUE.
<code>log_file</code>	String; specifies the file path for logging, effective only if 'logging' is TRUE.
<code>envir</code>	Evaluation environment, defaulting to the parent frame.

Value

Returns the result of the evaluated expression, or NULL in the event of an error or warning.

Examples

```
SafeExecute({
  x <- rnorm(100)
  if (mean(x) > 0) "Positive" else "Negative"
}, logging = TRUE, log_file = "run_log.txt")
```

SaveNow*Save the Current R Session*

Description

This function saves the current R session into a .RData file, enabling the session to be resumed in future Slurm job executions. It also logs session details into a timestamped text file, aiding in reproducibility and debugging. The session file name and timestamp can be specified; if not, defaults are used.

Usage

```
SaveNow(session_file_name = NULL, timestamp = NULL)
```

Arguments

session_file_name	string (optional); the filename for saving the session. If not provided, the first command line argument will be used with "Data" appended.
timestamp	string (optional); the timestamp to append to the session info file. Defaults to the current datetime if not provided.

Examples

```
SaveNow() # Save using default settings
```

setAccount	<i>Set COMPUTE_ACCOUNT Environment Variable</i>
------------	---

Description

Sets the COMPUTE_ACCOUNT environment variable to the specified account name and displays it.

Usage

```
setAccount(accountName)
```

Arguments

accountName	Account name to set as COMPUTE_ACCOUNT.
-------------	---

Examples

```
setAccount("snic123456")
```

SetConfig	<i>Set Environment Configuration Interactively</i>
-----------	--

Description

Interactively prompts for various configuration settings and writes them to a shell script in the user's home directory. The script, formatted for environment variable export, is intended for shell sourcing. Includes conversion of job time from minutes to D-H:M:S format.

Usage

```
SetConfig(force = F)
```

Arguments

None	Parameters are input interactively.
------	-------------------------------------

Value

No return value; outputs file path and contents to console.

Examples

```
SetConfig() # Run this in an interactive R session
```

setEmail	<i>Set USER_E_MAIL Environment Variable</i>
----------	---

Description

Sets the USER_E_MAIL environment variable to the specified email and displays it.

Usage

```
setEmail(email)
```

Arguments

email	Email address to set as USER_E_MAIL.
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Examples

```
setEmail("user@example.com")
```

SetModules	<i>Update or Create Module Configuration</i>
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Description

Updates or creates a module configuration file in a specified directory, overwriting the existing file if allowed. The function is designed for interactive R sessions only and prints the file path and content to the console.

Usage

```
SetModules(modules = c("R/4.1.1", "R_packages/4.1.1"), force = TRUE)
```

Arguments

modules	A character vector of module names to be loaded (default is c("R/4.1.1", "R_packages/4.1.1")).
force	Logical; if TRUE, forcefully overwrite the existing module file if it exists (default is TRUE).

Value

No return value; outputs file path and contents to console.

Examples

```
SetModules() # Default usage
SetModules(modules = c("Python/3.8.5", "Java/1.8"), force = FALSE)
```

UpdateConfig	<i>Update Configuration Setting</i>
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Description

This function updates a specific configuration key in the ‘.temp_shell_exports‘ file located in the user’s home directory. If the key does not exist, it adds the key with the specified value.

Usage

UpdateConfig(key, value)

Arguments

- | | |
|-------|----------------------------------|
| key | The configuration key to update. |
| value | The new value for the key. |

Value

Invisible NULL; updates are made in-place.

Examples

UpdateConfig("NUM_THREADS", "8")

UpdateJobTime	<i>Update Job Time</i>
---------------	------------------------

Description

Update Job Time

Usage

UpdateJobTime(JOB_TIME_MINUTES)

Arguments

- | | |
|------------------|---------------------------------|
| JOB_TIME_MINUTES | New job time to set in minutes. |
|------------------|---------------------------------|

UpdateNumThreads	<i>Update the Number of Threads</i>
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Description

Update the Number of Threads

Usage

UpdateNumThreads(NUM_THREADS)

Arguments

NUM_THREADS New number of threads to set.

UpdateOutputDir	<i>Update Output Directory</i>
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Description

Update Output Directory

Usage

UpdateOutputDir(OUTPUT_DIR)

Arguments

OUTPUT_DIR New output directory to set.

UpdatePartition	<i>Update Job Partition</i>
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Description

Update Job Partition

Usage

UpdatePartition(PARTITION)

Arguments

PARTITION New partition to set.

UpdateSuffix	<i>Update File Suffix</i>
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Description

Update File Suffix

Usage

UpdateSuffix(SUFFIX)

Arguments

SUFFIX	New suffix for the files to set.
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