

Package ‘miaDash’

April 25, 2025

Version 1.1.0

Title Shiny app for the interactive analysis and exploration of
microbiome data

Description miaDash provides a Graphical User Interface for the exploration of
microbiome data. This way, no knowledge of programming is required to
perform analyses. Datasets can be imported, manipulated, analysed and
visualised with a user-friendly interface.

biocViews Microbiome, Software, Visualization, GUI, ShinyApps,
DataImport

License Artistic-2.0

Encoding UTF-8

Depends R (>= 4.4.0), iSEE, shiny

Imports ape, biomformat, htmltools, iSEEtree (>= 1.1.4), mia,
rintrojs, scatter, shinydashboard, shinyjs, S4Vectors,
SingleCellExperiment, SummarizedExperiment,
TreeSummarizedExperiment, utils, vegan

Suggests BiocStyle, knitr, philr, remotes, rmarkdown, testthat (>= 3.0.0)

URL <https://github.com/microbiome/miaDash>

BugReports <https://github.com/microbiome/miaDash/issues>

Roxygen list(markdown = TRUE)

RoxygenNote 7.3.2

VignetteBuilder knitr

Config/testthat/edition 3

git_url <https://git.bioconductor.org/packages/miaDash>

git_branch devel

git_last_commit 0b863bc

git_last_commit_date 2025-04-15

Repository Bioconductor 3.22

Date/Publication 2025-04-24

Author Giulio Benedetti [aut, cre] (ORCID:
<<https://orcid.org/0000-0002-8732-7692>>),
Akwak Jeba [ctb] (ORCID: <<https://orcid.org/0009-0007-1347-7552>>),
Leo Lahti [aut] (ORCID: <<https://orcid.org/0000-0001-5537-637X>>)

Maintainer Giulio Benedetti <giulio.benedetti@utu.fi>

Contents

constants	2
create_observers	3
landing_page	3
miaDash	4
render_output	4
utils	5
Index	6

constants	<i>Constants</i>
-----------	------------------

Description

Constant values used throughout the miaDash app.

Usage

- .miaDashDefaultPanels
- .miaDashOtherPanels
- .transformMethods
- .alphaMetrics
- .betaMetrics
- .betaMethods

Format

- An object of class character of length 7.
- An object of class character of length 9.
- An object of class character of length 19.
- An object of class character of length 23.
- An object of class character of length 4.
- An object of class character of length 4.

Panel layout

- .miaDashDefaultPanels List of panel names in the default layout of miaDash.
- .miaDashOtherPanels List of panel names not in the default layout of miaDash.
- .transformMethods List of transformations applicable to assays.
- .alphaMetrics List of alpha diversity metrics.
- .betaMetrics List of beta diversity metrics.
- .betaMethods List of beta diversity methods.

Author(s)

Giulio Benedetti

create_observers	<i>Observers</i>
------------------	------------------

Description

.create_observers and .create_launch_observers define the server to import and build TreeSE objects and track the state of the Build and Launch buttons.

Usage

```
.create_import_observers(input, rObjects)

.create_manipulate_observers(input, rObjects)

.create_estimate_observers(input, rObjects)

.update_observers(input, session, rObjects)

.create_launch_observers(FUN, input, session, rObjects)
```

Arguments

input	The Shiny input object from the server function.
rObjects	A reactive list of values generated in the landing page.

Value

Observers are created in the server function in which this is called. A NULL value is invisibly returned.

landing_page	<i>Landing page</i>
--------------	---------------------

Description

.landing_page creates the landing page of miaDash, where TreeSE objects can be built and iSEE can be launched.

Usage

```
.landing_page(FUN, input, output, session)
```

Value

The UI is defined by the function. A NULL value is invisibly returned.

`miaDash`*miaDash*

Description

`miaDash` is a web app that provides an interface to build and explore [TreeSummarizedExperiment](#) (TreeSE) objects by means of [iSEE](#).

Usage

```
miaDash()
```

Value

An [iSEE](#) app with a custom landing page to build TreeSE objects and explore [mia datasets](#).

See Also

[iSEE](#) [mia](#) [miaViz](#)

Examples

```
app <- miaDash()

if (interactive()) {
  shiny::runApp(app)
}
```

`render_output`*Outputs*

Description

`.render_overview` and `.render_download` create the output of the UI, which consists of the overview of the TreeSE object and the download object, respectively.

Usage

```
.render_overview(output, rObjects)

.render_download(output, rObjects)
```

Arguments

`output` The Shiny output object from the server function.

Value

Adds a rendered item to output. A NULL value is invisibly returned.

utils

*miaDash utilities***Description**

Helper functions to support the app functionality.

Usage

```
.import_datasets(selection)

.update_tse(tse, fun, fun.args)

.print_message(..., title = "Invalid input:")

.set_optarg(item, loader = NULL, alternative = NULL, ...)

.check_formula(form, tse)
```

Arguments

selection	Numeric vector. A list of indices for the mia datasets to return.
tse	a TreeSummarizedExperiment object.
fun	Function scalar. Function to apply to tse.
fun.args	Named list. A list of arguments to pass to fun.
...	Either a series of strings to form the message returned by .print_message or named arguments for loader.
title	Character scalar. The title of the error message to print. (Default: "Invalid input:")
item	Character scalar. The file path from which the object should be loaded.
loader	Function scalar. The function to load item. (Default: NULL)
alternative	an alternative output to return when at least one item and loader are not defined. (Default: NULL)
form	Character scalar The formula to be checked.

Value

- .import_datasets: returns the list of available mia datasets.
- .update_tse: returns a TreeSE object after applying fun with arguments fun.args. Eventual messages and errors are also printed.
- .print_message: returns a modalDialog with the error message specified with ... and titled title.
- .set_optarg: returns an optional element for a TreeSE constructor. The output is either an object located at the file path item and loaded with loader or alternative.
- .check_formula: returns TRUE or FALSE depending whether or not all variables included in form are present in se colData.

Index

- * **datasets**
 - constants, [2](#)
- * **internal**
 - constants, [2](#)
 - create_observers, [3](#)
 - landing_page, [3](#)
 - render_output, [4](#)
 - utils, [5](#)
- .alphaMetrics (constants), [2](#)
- .betaMethods (constants), [2](#)
- .betaMetrics (constants), [2](#)
- .check_formula (utils), [5](#)
- .create_estimate_observers
 - (create_observers), [3](#)
- .create_import_observers
 - (create_observers), [3](#)
- .create_launch_observers
 - (create_observers), [3](#)
- .create_manipulate_observers
 - (create_observers), [3](#)
- .import_datasets (utils), [5](#)
- .landing_page (landing_page), [3](#)
- .miaDashDefaultPanels (constants), [2](#)
- .miaDashOtherPanels (constants), [2](#)
- .print_message (utils), [5](#)
- .render_download (render_output), [4](#)
- .render_overview (render_output), [4](#)
- .set_optarg (utils), [5](#)
- .transformMethods (constants), [2](#)
- .update_observers (create_observers), [3](#)
- .update_tse (utils), [5](#)
- constants, [2](#)
- create_observers, [3](#)
- iSEE, [4](#)
- landing_page, [3](#)
- mia, [4](#)
- mia datasets, [4](#)
- miaDash, [4](#)
- miaViz, [4](#)
- render_output, [4](#)
- TreeSummarizedExperiment, [4](#), [5](#)
- utils, [5](#)