

Package ‘miaDash’

April 9, 2026

Version 1.3.0

Title Dashboard 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 (>= 2.19.4), shiny

Imports ape, bluster, htmltools, iSEEtree (>= 1.1.4), mia, rintrojs, scater, scuttle, shinydashboard, shinyjs, shinyWidgets, 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 7.3.3

VignetteBuilder knitr

Config/testthat/edition 3

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

git_branch devel

git_last_commit 320315c

git_last_commit_date 2025-10-29

Repository Bioconductor 3.23

Date/Publication 2026-04-08

Author Giulio Benedetti [aut, cre] (ORCID:

<<https://orcid.org/0000-0002-8732-7692>>),

Akewak 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 | 4 |
| miaDash | 4 |
| render_output | 5 |
| utils | 5 |
| Index | 7 |

constants

Constants

Description

Constant values used throughout the miaDash app.

Usage

.miaDashDefaultPanels

.miaDashOtherPanels

.transformMethods

.qualityMetrics

.alphaMetrics

.betaMetrics

.betaMethods

.clustMethods

.DmmCriteria

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 list of length 4.
- An object of class character of length 23.
- An object of class character of length 4.
- An object of class character of length 4.
- An object of class character of length 4.
- An object of class character of length 3.

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.
- .qualityMetrics List of metrics for quality control.

Author(s)

Giulio Benedetti

create_observers *Observers*

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 | <i>miaDash</i> |
|---------|----------------|

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 | <i>Outputs</i> |
|---------------|----------------|

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 | <i>miaDash utilities</i> |
|-------|--------------------------|

Description

Helper functions to support the app functionality.

Usage

```
.import_datasets(selection)

.update_tse(tse, fun, fun.args = list())

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

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

```
.check_formula(form, tse)

.importBIOM(file, col.data = NULL, tree.file = NULL, ...)

.rownames2taxa(x)
```

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 <code>.print_message</code> 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, 4
 - render_output, 5
 - utils, 5
- .DmmCriteria (constants), 2
- .alphaMetrics (constants), 2
- .betaMethods (constants), 2
- .betaMetrics (constants), 2
- .check_formula (utils), 5
- .clustMethods (constants), 2
- .create_estimate_observers (create_observers), 3
- .create_import_observers (create_observers), 3
- .create_launch_observers (create_observers), 3
- .create_manipulate_observers (create_observers), 3
- .importBIOM (utils), 5
- .import_datasets (utils), 5
- .landing_page (landing_page), 4
- .miaDashDefaultPanels (constants), 2
- .miaDashOtherPanels (constants), 2
- .print_message (utils), 5
- .qualityMetrics (constants), 2
- .render_download (render_output), 5
- .render_overview (render_output), 5
- .rownames2taxa (utils), 5
- .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, 4

mia, 4

mia datasets, 4

miaDash, 4

miaViz, 4

render_output, 5

TreeSummarizedExperiment, 4, 6

utils, 5