

# Package ‘miaDash’

January 20, 2026

**Version** 1.2.0

**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

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

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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

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

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**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**

|                       |                                                          |
|-----------------------|----------------------------------------------------------|
| <code>input</code>    | The Shiny input object from the server function.         |
| <code>rObjects</code> | 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.

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

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### 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.

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

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### 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.

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

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### 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**

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

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