

# Package: phantus (via r-universe)

May 29, 2026

**Title** Visual and interactive gene expression analysis

**Version** 1.32.0

**Description** Phantus is a web-application for visual and interactive gene expression analysis. Phantus is based on Morpheus – a web-based software for heatmap visualisation and analysis, which was integrated with an R environment via OpenCPU API. Aside from basic visualization and filtering methods, R-based methods such as k-means clustering, principal component analysis or differential expression analysis with limma package are supported.

**URL** <https://alserglab.wustl.edu/phantus>

**BugReports** <https://github.com/ctlab/phantus/issues>

**Depends** R (>= 4.3)

**biocViews** GeneExpression, GUI, Visualization, DataRepresentation, Transcriptomics, RNASeq, Microarray, Normalization, Clustering, DifferentialExpression, PrincipalComponent, ImmunoOncology

**Imports** ggplot2, protolite, Biobase, GEOquery, htmltools, httpuv, jsonlite, limma, edgeR, opencpu, assertthat, methods, httr, rhdf5, utils, parallel, stringr, fgsea (>= 1.9.4), svglite, gtable, stats, Matrix, pheatmap, scales, ccaPP, grid, grDevices, AnnotationDbi, DESeq2, data.table, curl, apeglm, config (>= 0.3.2), rhdf5client (>= 1.25.1), yaml, fs, phantusLite, XML

**License** MIT + file LICENSE

**Encoding** UTF-8

**LazyData** true

**RoxygenNote** 7.3.3

**Suggests** testthat, BiocStyle, knitr, rmarkdown, org.Hs.eg.db, org.Mm.eg.db

**VignetteBuilder** knitr

**NeedsCompilation** no

**Config/build/copy-method** [link](#)

**Config/pak/sysreqs** libapparmor-dev cmake libfontconfig1-dev libfreetype6-dev libfribidi-dev git make libharfbuzz-dev libicu-dev libpng-dev libprotobuf-dev libuv1-dev libxml2-dev libssl-dev protobuf-compiler libprotoc-dev libx11-dev zlib1g-dev

**Repository** <https://bioc-release.r-universe.dev>

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**RemoteRef** RELEASE\_3\_23

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es	<i>Example dataset</i>
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### Description

Small slice from GSE27112-GPL6103 for runnable examples.

### Usage

es

### Format

An object of class ExpressionSet with 20 rows and 5 columns.

**Examples**

```
## Not run:  
data(es)  
performKmeans(es, k = 2)  
  
## End(Not run)
```

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fgseaExample	<i>Example pathway data.frame for fgsea tool</i>
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**Description**

Example pathway data.frame for fgsea tool

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generatePreloadedSession	<i>Generate files for preloaded session from a session link.</i>
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**Description**

Generate files for preloaded session from a session link.

**Usage**

```
generatePreloadedSession(sessionURL, preloadedName, preloadedDir)
```

**Arguments**

sessionURL	String with session link produced by phantasus.
preloadedName	String with name that should be assigned to the session.
preloadedDir	Path to the directory with preloaded datasets and sessions.

**Value**

Function produces two files (preloadedName.rda with ExpressionSet and preloadedName.json with session features) in preloadedDir folder.

**Examples**

```
## Not run:
sessionURL <- "https://ctlab.itmo.ru/phantasus/?session=x063c1b365b9211" # link from 'Get dataset link...' tool in
newName <- "my_session" # user defined name
preloadedDir <- "./preloaded" # directory where files will be stored. In order too get access through phantasus web-
dir.create(preloadedDir, showWarnings = FALSE)
generatePreloadedSession(sessionURL= sessionURL,
                        preloadedName = newName,
                        preloadedDir = preloadedDir)

servePhantasus(preloadedDir=preloadedDir, openInBrowser=FALSE)
# open browser manually at http://0.0.0.0:8000/phantasus/index.html?preloaded=my_session

## End(Not run)
```

---

getES

*Load ExpressionSet by GEO identifier*


---

**Description**

getES return the ExpressionSet object(s) corresponding to GEO identifier.

**Usage**

```
getES(
  name,
  type = NA,
  destdir = getPhantasusConf("cache_folders")$geo_path,
  mirrorPath = getPhantasusConf("geo_mirrors")
)
```

**Arguments**

name	String, containing GEO identifier of the dataset. It should start with 'GSE' or 'GDS' and can include exact GPL to annotate dataset, separated with dash ('-') from the identifier.
type	Type of the dataset: 'GSE' or 'GDS'. If not specified, the function will take first three letters of name variable as type.
destdir	Directory for caching loaded Series and GPL files from GEO database.
mirrorPath	URL string which specifies the source of matrices.

**Value**

List of ExpressionSet objects, that were available by given in name variable GEO identifier.

## Examples

```
## Not run:
  getES('GSE14308', type = 'GSE', destdir = 'cache')
  getES('GSE27112')
  getES('GDS4922')

## End(Not run)
```

---

getGDS

*Load ExpressionSet from GEO Datasets*

---

## Description

getGDS return the ExpressionSet object corresponding to GEO Dataset identifier.

## Usage

```
getGDS(
  name,
  destdir = getPhantasusConf("cache_folders")$geo_path,
  mirrorPath = getPhantasusConf("geo_mirrors")
)
```

## Arguments

name	String, containing GEO identifier of the dataset. It should start with 'GSE' or 'GDS' and can include exact GPL to annotate dataset, separated with dash ('-') from the identifier.
destdir	Directory for caching loaded Series and GPL files from GEO database.
mirrorPath	URL string which specifies the source of matrices.

## Value

ExpressionSet object wrapped in list, that was available by given in name variable GEO identifier.

## Examples

```
## Not run:
  getGDS('GDS4922', destdir = tempdir(), mirrorPath = "https://ftp.ncbi.nlm.nih.gov")

## End(Not run)
```

---

`getGSE`*Load ExpressionSet from GEO Series*

---

**Description**

getGSE return the ExpressionSet object(s) corresponding to GEO Series Identifier.

**Usage**

```
getGSE(  
  name,  
  destdir = getPhantasusConf("cache_folders")$geo_path,  
  mirrorPath = getPhantasusConf("geo_mirrors")  
)
```

**Arguments**

name	String, containing GEO identifier of the dataset. It should start with 'GSE' or 'GDS' and can include exact GPL to annotate dataset, separated with dash ('-') from the identifier.
destdir	Directory for caching loaded Series and GPL files from GEO database.
mirrorPath	URL string which specifies the source of matrices.

**Value**

List of ExpressionSet objects, that were available by given in name variable GEO identifier.

**Examples**

```
## Not run:  
  getGSE('GSE14308', destdir = 'cache')  
  getGSE('GSE27112')  
  getGSE('GSE53986')  
  
## End(Not run)
```

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`getPhantasusConf`*Read Phantasus Config*

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**Description**

Read Phantasus Config

**Usage**

```
getPhantasiaConf(  
  value = NULL,  
  configName = Sys.getenv("R_CONFIG_ACTIVE"),  
  file = file.path(tools::R_user_dir(package = "phantasia", which = "config"),  
    "user.conf")  
)
```

**Arguments**

value	Value to retrieve from the config file.
configName	R_CONFIG_ACTIVE value. If unset, "default".
file	Location of the config file

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read.gct	<i>Reads ExpressionSet from a GCT file. Function is deprecated, please use phantasiaLite:::readGct() instead</i>
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**Description**

Reads ExpressionSet from a GCT file. Function is deprecated, please use phantasiaLite:::readGct() instead

**Usage**

```
read.gct(...)
```

**Arguments**

... parameters for phantasiaLite:::readGct() call

**Value**

ExpressionSet object

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reparseCachedESSs	<i>Reparse cached expression sets from GEO.</i>
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### Description

The function should be used on phantasus version updates that change behavior of loading datasets from GEO. It finds all the datasets that were cached and runs 'getES' for them again. The function uses cached Series and other files from GEO.

### Usage

```
reparseCachedESSs(destdir, mirrorPath = getPhantasusConf("geo_mirrors"))
```

### Arguments

destdir	Directory used for caching loaded Series files from GEO database.
mirrorPath	URL string which specifies the source of matrices.

### Value

vector of previously cached GSE IDs

### Examples

```
reparseCachedESSs(destdir=tempdir(), "https://ftp.ncbi.nlm.nih.gov")
```

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servePhantasus	<i>Serve phantasus.</i>
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### Description

servePhantasus starts http server handling phantasus static files and opencpu server.

### Usage

```
servePhantasus(
  host = getPhantasusConf("host"),
  port = getPhantasusConf("port"),
  staticRoot = getPhantasusConf("static_root"),
  preloadedDir = getPhantasusConf("preloaded_dir"),
  openInBrowser = TRUE,
  quiet = TRUE,
  background = FALSE
)
```

**Arguments**

host	Host to listen.
port	Single integer port to listen on.
staticRoot	Path to static files with phantasia.js (on local file system).
preloadedDir	Full path to directory with preloaded files.
openInBrowser	Boolean value which states if application will be automatically loaded in default browser.
quiet	Boolean value which states whether the connection log should be hidden (default: TRUE)
background	Boolean value which states whether the server should be started in background (default: FALSE). Returns an httpuv server handle when TRUE.

**Value**

In background=TRUE mode, the httpuv server handle. Otherwise does not return (blocks until interrupted).

**Examples**

```
## Not run:
# Returns handle immediately
s <- servePhantasia(background=TRUE)
s$stop()

## End(Not run)

httpuv::stopAllServers() # can be used if handle is lost
```

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setupPhantasia	<i>Setup phantasia. Read user config file ( or create default one) and fill cache_root using sources in file.</i>
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**Description**

Setup phantasia. Read user config file ( or create default one) and fill cache\_root using sources in file.

**Usage**

```
setupPhantasia(setup_name = "default", file = confFile("setup.yml"))
```

**Arguments**

setup_name	name of config from file. If unset or not existed, "default".
file	Location of the setup.yml file with setup parameters. If not existed use file from package

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write.gct	<i>Saves ExpressionSet to a GCT file (version 1.3). Function is deprecated, please use phantasusLite::writeGct() instead</i>
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**Description**

Saves ExpressionSet to a GCT file (version 1.3). Function is deprecated, please use phantasusLite::writeGct() instead

**Usage**

```
write.gct(...)
```

**Arguments**

... parameters for phantasusLite::writeGct() call

**Value**

Result of the closing file (as in 'close()' function)

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