

# Package ‘nlmixr2rpt’

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**Title** Templated Word and PowerPoint Reporting of 'nlmixr2' Fitting Results

**Version** 0.1.0

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**Description** This allows you to generate reporting workflows around 'nlmixr2' analyses with outputs in Word and PowerPoint. You can specify figures, tables and report structure in a user-definable 'YAML' file. Also you can use the internal functions to access the figures and tables to allow their including in other outputs (e.g. R Markdown).

**URL** <https://nlmixr2.github.io/nlmixr2rpt/>

**BugReports** <https://github.com/nlmixr2/nlmixr2rpt/issues>

**License** GPL (>= 3)

**Encoding** UTF-8

**RoxygenNote** 7.2.1

**Imports** cli, dplyr, flextable, ggforce, ggpubr, ggplot2, grDevices, stringr, nlmixr2extra (>= 2.0.7), onbrand, rxode2, utils, xpose, xpose.nlmixr2, yaml

**Suggests** nlmixr2, rmarkdown, ggPMX, knitr, testthat (>= 3.0.0)

**VignetteBuilder** knitr

**Config/testthat/edition** 3

**NeedsCompilation** no

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**Repository** CRAN

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build_figures	<i>Generates Figures for an nlmixr2 Report</i>
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## Description

Creates figures specified in a rptyaml file

## Usage

```
build_figures(
  obnd = NULL,
  fit = NULL,
  rptdetails = NULL,
  cat_covars = NULL,
  cont_covars = NULL,
  verbose = TRUE
)
```

## Arguments

obnd	onbrand report object to have report elements appended to
fit	nlmixr2 fit object to be reported
rptdetails	Object created when reading in rptyaml file
cat_covars	character vector of categorical covariates to overwrite defaults in yaml file
cont_covars	character vector of continuous covariates to overwrite defaults in yaml file
verbose	Boolean variable when set to TRUE (default) messages will be displayed on the terminal

## Value

List containing the figures with the following structure:

- "rptfigs" - List of figures with names corresponding to the figure ids in the yaml file. Each figure ID contains the following elements:
  - "figure" - list of figure file names for the current fid

- "orientation" - Figure orientation ("portrait" or "landscape")
- "isgood" - Boolean variable indicating success or failure
- "skip" - Boolean variable indicating whether the figure should be skipped during reporting
- "fmsgs" - Vector of messages
- "cmd" - Original plot generation command
- "cmd\_proc" - Plot generation command after processing for placeholders
- "height" - Figure height
- "width" - Figure width
- "caption" - Caption for Word
- "caption\_proc" - Caption for Word after processing for placeholders
- "title" - Slide title for PowerPoint
- "title\_proc" - Slide title for PowerPoint after processing for placeholders
- "isgood" - Boolean variable indicating success or failure
- "msgs" - Vector of messages

## Examples

```
# We need an onbrand object to use below
library(onbrand)
obnd = read_template(
  template = system.file(package="nlmixr2rpt", "templates", "nlmixr_obnd_template.docx"),
  mapping = system.file(package="nlmixr2rpt", "templates", "nlmixr_obnd_template.yaml"))

# We also need an nlmixr fit object
fit = fetch_fit_example()

# This reads in the report details as well
rptdetails = yaml_read_fit(
  obnd = obnd,
  rptyaml = system.file(package="nlmixr2rpt", "examples", "report_fit_test.yaml"),
  fit = fit)$rptdetails

# Now we will build the figures
bfres = build_figures(obnd = obnd,
  fit = fit,
  rptdetails = rptdetails)
```

---

build\_tables

*Generates Tables for an nlmixr2 Report*

---

## Description

Creates tables specified in a rptyaml file

**Usage**

```

build_tables(
  obnd = NULL,
  fit = NULL,
  rptdetails = NULL,
  cat_covars = NULL,
  cont_covars = NULL,
  verbose = TRUE
)

```

**Arguments**

obnd	onbrand report object to have report elements appended to
fit	nlmixr2 fit object to be reported
rptdetails	object creating when reading in rptyaml file
cat_covars	character vector of categorical covariates to overwrite defaults in yaml file
cont_covars	character vector of continuous covariates to overwrite defaults in yaml file
verbose	Boolean variable when set to TRUE (default) messages will be displayed on the terminal

**Value**

List containing the tables with the following structure:

- "rpttabs" - List of tables with names corresponding to the table ids in the yaml file. It contains the elements from the yamle file and the following elements:
  - "table" - Result of build (t\_res object)
  - "orientation" - Table orientation ("portrait" or "landscape")
  - "isgood" - Boolean variable indicating success or failure
  - "skip" - Boolean variable indicating whether the table should be skipped during reporting
  - "tmsgs" - Vector of messages
  - "cmd" - Original plot generation command
  - "cmd\_proc" - Plot generation command after processing for placeholders
  - "height" - Table height
  - "width" - Table width
  - "caption" - Caption for Word
  - "caption\_proc" - Caption for Word after processing for placeholders
  - "title" - Slide title for PowerPoint
  - "title\_proc" - Slide title for PowerPoint after processing for placeholders
- "isgood" - Boolean variable indicating success or failure
- "msgs" - Vector of messages

## Examples

```
# We need an onbrand object to use below

library(onbrand)
obnd = read_template(
  template = system.file(package="nlmixr2rpt", "templates", "nlmixr_obnd_template.docx"),
  mapping = system.file(package="nlmixr2rpt", "templates", "nlmixr_obnd_template.yaml"))

# We also need an nlmixr fit object
fit = fetch_fit_example()

# This reads in the report details as well
rptdetails = yaml_read_fit(
  obnd = obnd,
  rptyaml = system.file(package="nlmixr2rpt", "examples", "report_fit_test.yaml"),
  fit = fit)$rptdetails

# Now we will build the tables
btres = build_tables(obnd = obnd,
                    fit = fit,
                    rptdetails = rptdetails)
```

---

eval\_str

*Evaluate R Code in String*

---

## Description

Attempts to evaluate a string as a chunk of R code.

## Usage

```
eval_str(estr = "", fit = NULL)
```

## Arguments

estr	Object creating when reading in rptyaml file
fit	nlmixr2 fit object to be reported

## Value

String containing the evaled as a character or the original string

## Examples

```
res = eval_str(estr="ls()")
```

---

 fetch\_fdim

*Gets Figure Dimensions*


---

### Description

For a given figure id and report type this will pull out the dimensions of the figure.

### Usage

```
fetch_fdim(obnd = NULL, fid = NULL, fdim = "width", rptdetails = NULL)
```

### Arguments

obnd	onbrand report object to have report elements appended to
fid	Figure ID used in the figures section of the yaml file
fdim	Dimension to fetch either "width" or "height"
rptdetails	Object creating when reading in rptyaml file

### Value

ggplot object

### Examples

```
library(onbrand)
obnd = read_template(
  template = system.file(package="nlmixr2rpt", "templates", "nlmixr_obnd_template.pptx"),
  mapping = system.file(package="nlmixr2rpt", "templates", "nlmixr_obnd_template.yaml"))

# This will create an example fit object to use in the examples below
fit = fetch_fit_example()

# This reads in the report details as well
rptdetails = yaml_read_fit(
  obnd = obnd,
  rptyaml = system.file(package="nlmixr2rpt", "examples", "report_fit_test.yaml"),
  fit = fit)$rptdetails

fetch_fdim(obnd=obnd, fid="bad_figure", fdim="width", rptdetails=rptdetails)

fetch_fdim(obnd=obnd, fid="bad_figure", fdim="height", rptdetails=rptdetails)
```

---

fetch_fit_example	<i>Fetch Fit Example</i>
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**Description**

Creates an nlmixr2 fit example using posthoc estimation method for testing purposes. displayed on the terminal following:

**Usage**

```
fetch_fit_example(use_cache = TRUE)
```

**Arguments**

use\_cache      Boolean variable used to cache the fit process for the current R session.

**Value**

Example nlmixr2 fit object

**Examples**

```
fit = fetch_fit_example()
```

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fetch_option	<i>Fetch Analysis Options</i>
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**Description**

Fetches analysis options from the report yaml applies it to strings.

**Usage**

```
fetch_option(rptdetails, option = NULL, fit = NULL, verbose = TRUE)
```

**Arguments**

rptdetails      Object creating when reading in rptyaml file  
option          String containing the option to fetch (see below)  
fit              nlmixr2 fit object to be reported  
verbose         Boolean variable when set to TRUE (default) messages will be displayed on the terminal following:

**Details**

The option can be one of the following (default: NULL):

- "output\_dir" - Directory to place figures that are generated (default: tempdir())
- "resolution" - Resolution of figure files (default: 300)

**Value**

List containing the following information about the output directory

- "isgood" - Boolean variable indicating success or failure
- "msgs" - Vector of messages
- "value" - The value of the option or the default if not specified

**Examples**

```
library(onbrand)
obnd = read_template(
  template = system.file(package="nlmixr2rpt", "templates", "nlmixr_obnd_template.pptx"),
  mapping = system.file(package="nlmixr2rpt", "templates", "nlmixr_obnd_template.yaml"))

# This will create an example fit object to use in the examples below
fit = fetch_fit_example()

# This reads in the report details as well
rptdetails = yaml_read_fit(
  obnd = obnd,
  rptyaml = system.file(package="nlmixr2rpt", "examples", "report_fit_test.yaml"),
  fit = fit)$rptdetails

fetch_option(rptdetails, option="output_dir", fit=fit)
```

---

gen\_pest\_table

*Makes nlmixr2 Parameter Estimate Table for Reporting*

---

**Description**

Generates a flextable containing the parameter estimates.

**Usage**

```
gen_pest_table(obnd = NULL, fit = NULL, rptdetails = NULL, verbose = TRUE)
```



**Arguments**

obnd	onbrand report object to have report elements appended to
fit	nlmixr2 fit object to be reported
rptdetails	object creating when reading in rptyaml file
verbose	Boolean variable when set to TRUE (default) messages will be displayed on the terminal

**Value**

List with the following elements

- "isgood" - Boolean variable indicating success or failure
- "msgs" - Vector of messages
- "ft" - Parameter estimates as a flextable object
- "df" - Parameter estimates as a data.frame

**Examples**

```
library(onbrand)
obnd = read_template(
  template = system.file(package="nlmixr2rpt", "templates", "nlmixr_obnd_template.pptx"),
  mapping = system.file(package="nlmixr2rpt", "templates", "nlmixr_obnd_template.yaml"))

# This will create an example fit object to use in the examples below
fit = fetch_fit_example()

## This reads in the report details as well
rptdetails = yaml_read_fit(
  obnd = obnd,
  rptyaml = system.file(package="nlmixr2rpt", "examples", "report_fit_test.yaml"),
  fit = fit)$rptdetails

gen_pest_table(obnd = obnd, fit = fit, rptdetails = rptdetails, verbose = TRUE)
```

---

mk\_error\_fig

*Generates ggplot Object with Error Message*


---

**Description**

Takes a vector of messages and returns a ggplot object with the text in the figure. This can be used in automated figure generation to cascade an error message to the end user.

**Usage**

```
mk_error_fig(msgs)
```

**Arguments**

msgs            Vector of error messages

**Value**

ggplot object

**Examples**

```
mk_error_fig("This is an error")
```

---

mk\_error\_tab            *Generates a flextable Object with Error Message*

---

**Description**

Takes a vector of messages and returns a flextable object with the text in the table. This can be used in automated table generation to cascade an error message to the end user.

**Usage**

```
mk_error_tab(msgs)
```

**Arguments**

msgs            Vector of error messages

**Value**

list with a single flextable object

**Examples**

```
error_tab = mk_error_tab("This is an error")  
error_tab$ft[[1]]
```

---

process_ph	<i>Substitutes Placeholders in Strings</i>
------------	--

---

## Description

Takes placeholder information from the rptyaml file and applies it to strings.

## Usage

```
process_ph(str, rptdetails)
```

## Arguments

str	String to process
rptdetails	Object creating when reading in rptyaml file (default: NULL)

## Value

processed string

## Examples

```
library(onbrand)
obnd = read_template(
  template = system.file(package="nlmixr2rpt", "templates", "nlmixr_obnd_template.docx"),
  mapping = system.file(package="nlmixr2rpt", "templates", "nlmixr_obnd_template.yaml"))

# We also need an nlmixr fit object
fit = fetch_fit_example()

# This reads in the report details as well
rptdetails = yaml_read_fit(
  obnd = obnd,
  rptyaml = system.file(package="nlmixr2rpt", "examples", "report_fit_test.yaml"),
  fit = fit)$rptdetails

str = "This is ===CMPD==="

process_ph(str, rptdetails)
```

---

 report\_fit

*Report nlmixr2 Fit Results to PowerPoint and Word*


---

## Description

Appends nlmixr2 fit results to an onbrand report object with the content and format of the report in the supplied yaml file

## Usage

```
report_fit(
  obnd = NULL,
  fit = NULL,
  placeholders = NULL,
  cat_covars = NULL,
  cont_covars = NULL,
  parameters = NULL,
  rptyaml = system.file(package = "nlmixr2rpt", "templates", "report_fit.yaml"),
  verbose = FALSE
)
```

## Arguments

obnd	onbrand report object to have report elements appended to.
fit	nlmixr2 fit object to be reported.
placeholders	Manual placeholders, see <a href="#">yaml_read_fit</a> for more.
cat_covars	character vector of categorical covariates to overwrite defaults in yaml file.
cont_covars	character vector of continuous covariates to overwrite defaults in yaml file.
parameters	list with element names for each parameter to overwrite defaults in yaml file.
rptyaml	yaml file containing the report elements and structure.
verbose	Boolean variable when set to TRUE messages will be .

## Value

onbrand object with the report elements added.

## Examples

```
library(onbrand)
obnd = read_template(
  template = system.file(package="nlmixr2rpt", "templates", "nlmixr_obnd_template.pptx"),
  mapping = system.file(package="nlmixr2rpt", "templates", "nlmixr_obnd_template.yaml"))

# This will create an example fit object to use in the examples below
fit = fetch_fit_example()
```

```

# Appending fit results
obnd_pptx = report_fit(
  fit      = fit,
  rptyaml = system.file(package="nlmixr2rpt", "examples", "report_fit_test.yaml"),
  obnd     = obnd)

# Writing the report to a file
save_report(obnd, file.path(tempdir(), "report.pptx"))

```

---

write_figure	<i>Writes Figures to File</i>
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---

### Description

Takes a figure object, optionally stamps the image, and writes to a file dimensions of the figure.

### Usage

```

write_figure(
  p_res = NULL,
  page = NULL,
  width = 3,
  height = 3,
  resolution = NULL,
  fig_file = NULL,
  fig_stamp = NULL,
  verbose = TRUE
)

```

### Arguments

p_res	ggplot, ggforce paginated object, or ggarrange object.
page	Page number to write or NULL for a ggplot object.
width	Width in inches.
height	Height in inches.
resolution	resolution in dpi.
fig_file	File name to write the figure to.
fig_stamp	Character object containing the text to stamp on the figure with optional <code>===file===</code> placeholder.
verbose	Boolean variable when set to TRUE (default) messages will be displayed on the terminal

**Value**

list with the following

- "isgood" - Boolean variable indicating success or failure
- "msgs" - Vector of messages

**Examples**

```
library(ggplot2)
write_figure(
  p_res = ggplot(),
  page = NULL,
  width = 3,
  height = 3,
  resolution = 200,
  fig_file = file.path(tempdir(), "write_figure_example.png"),
  fig_stamp = "stamp",
  verbose = TRUE)
```

---

yaml\_read\_fit

*Reads and Checks report\_fit.yaml File*

---

**Description**

Reads in the report yaml file and looks it to make sure it has all the necessary fields for the given report.

**Usage**

```
yaml_read_fit(
  obnd = NULL,
  rptyaml = NULL,
  placeholders = NULL,
  parameters = NULL,
  fit = NULL
)
```

**Arguments**

obnd	onbrand report object to have report elements appended to.
rptyaml	yaml file containing the report elements and structure.
placeholders	list of placeholders to overwrite defaults in the yaml file.
parameters	list with element names for each parameter to overwrite at runtime. with a named list for example RUN may be "RUNN" in the yaml file. To overwrite this just provide list(RUN="RUN_1") (default: NULL)
fit	nlmixr2 fit object to be reported.

**Value**

List containing the following information about the report

- "isgood" - Boolean variable indicating success or failure
- "msgs" - Vector of messages
- "rpttype" - Type of onbrand report ("Word" or "PowerPoint")
- "rptfigfmt" - Default figure formatting (orientation and dimensions)
- "rpttabfmt" - Default table formatting (orientation and dimensions)
- "rptdetails" - Contents of the yml file
- "rptcont" - Contents of the report to generate

**Examples**

```
# We need an onbrand object to use below
library(onbrand)
obnd = read_template(
  template = system.file(package="nlmixr2rpt", "templates", "nlmixr_obnd_template.docx"),
  mapping = system.file(package="nlmixr2rpt", "templates", "nlmixr_obnd_template.yml"))

# We also need an nlmixr fit object
fit = fetch_fit_example()

# This reads in the report details
yml_read_res = yml_read_fit(
  obnd = obnd,
  rptyml = system.file(package="nlmixr2rpt", "examples", "report_fit_test.yml"),
  fit = fit)
```

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