Lua [placeholders]*

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This file is maintained by **Xerdi**.
Bug reports can be opened at
`https://github.com/Xerdi/lua-placeholders`.

Abstract

A package for creating 'example' documents, which show parameters as placeholders and 'actual copy' documents, which show parameters with the real data, written in LuaTEX.

Contents

*This document corresponds to `lua-placeholders` version 1.0.3, written on 2024-04-02

1 Introduction

This package is meant for setting parameters in a LuaLaTeX document in a more programmatically way with YAML. Parameters can be specified by adding a 'recipe' file. These recipe files describe the parameter's type, placeholders and/or default values. From thereon, the placeholders can be displayed in the document and an '*example*' document can be created. An '*actual copy*' document can be created by loading additional payload files, which all must correspond to a recipe file.

1.1 Pros

1. Create an '*example*' or '*actual copy*' document with the same LaTeX source and YAML recipe.
2. Integration within systems is as easy as compiling a normal LaTeX document, especially thanks to the fallback support to JSON, which is quite renown in programming languages.
3. Supports multiple data types and formatting macros which work in most TeX environments, like `enumerate` or `tabular`.

1.2 Cons

1. The package only works with LuaLaTeX.
2. In order for the files to be loaded, commandline option '`--shell-escape`' is required.

1.3 Prerequisites

For proper number formatting package `numprint`[2] is required.

1.3.1 YAML Support

Starting from version 1.0.2, the preferred YAML implementation has changed from `lyaml`[1] to `lua-tinyyaml`[3]. The reason for this change is that `lua-tinyyaml` doesn't require any platform-specific dependencies, such as `libYAML`[4].

The older YAML implementation will still function for older installations that do not have `lua-tinyyaml`. As before, when no YAML implementation is found, `lua-placeholders` will fall back to JSON support.

2 Usage

This section describes the basic commands of `lua-placeholders`. For more detail about type specific commands or the behavior of types with commands described here, see section 3.

2.1 Configuration

`\strictparams` In order to give an error when values are missing, the `\strictparams`[1] command can be used. Make sure to do it before loading any ⟨*recipe*⟩ and ⟨*payload*⟩ `\loadrecipe` files. In order to load a recipe the macro `\loadrecipe[`⟨*namespace*⟩`]{`⟨*filename*⟩`}` can be used. Where the ⟨*filename*⟩ is a YAML file with its corresponding extension. The optional ⟨*namespace*⟩ is only a placeholder in order to prevent any conflicts between duplicate ⟨*key*⟩s. If left out, the ⟨*namespace*⟩ de- `\loadpayload` faults to the base name of the filename. The same behaviour counts for `\loadpayload[`⟨*namespace*⟩`]{`⟨*filename*⟩`}`. The order of loading ⟨*recipe*⟩ and ⟨*payload*⟩ files doesn't matter. If the ⟨*payload*⟩ file got loaded first, it will be yielded until the corresponding ⟨*recipe*⟩ file is loaded. When a file is loaded, a LaTeX hook will trigger once for `namespace/`⟨*namespace*⟩ and once for `namespace`⟨*namespace*⟩`/loaded`, respectively.

All other macros of this package also take the optional ⟨*namespace*⟩, which `\setnamespace` by default is equal to `\jobname`. This default ⟨*namespace*⟩ can be changed with `\setnamespace{`⟨*new default namespace*⟩`}`.

2.2 Displaying Parameters

For displaying variables, the commands `\param` and `\PARAM` share the same inter- `\param` face. The most trivial, displaying the variable as-is, is `\param[`⟨*namespace*⟩`]{`⟨*key*⟩`}`. `\PARAM` The `\PARAM` however, shows the value as upper case.

In some cases, it's required to output the text without any TeX related functionality. Another case is that some environments don't take macros with optional `\rawparam` arguments well. For these cases there is `\rawparam{`⟨*namespace*⟩`}{`⟨*key*⟩`}`, which takes the namespace as mandatory argument, instead of optional, and doesn't output fancy TeX placeholders.

`\hasparam` To check whether a parameter is set, the `\hasparam[`⟨*namespace*⟩`]{`⟨*key*⟩`}{`⟨*true case*⟩`}{`⟨*false case*⟩`}` command is used. However, a more robust way is using LaTeX hooks. For recipes being loaded, the hook `namespace/`⟨*name*⟩ is triggered once. For payloads being loaded, the hook `namespace/`⟨*name*⟩`loaded` is triggered once. For more information on LaTeX hooks, read the `lthooks` manual.

[1] The `\strictparams` command is still under development.

3 Parameter Specification

Every parameter specified has a ⟨*type*⟩ set. Optionally there is a choice between setting a ⟨*default*⟩ or a ⟨*placeholder*⟩ for the parameter.

bool Next to the textual representation of *true* and *false*, it provides a LaTeX command using the `ifthen` package. Therefore, only the ⟨*default*⟩ setting makes sense.

Recipe

```
bool example:
  type: bool
  default: false
```

Payload

```
bool example: true
```

`\param` `\ifparam` With a boolean type the `\param[`⟨*namespace*⟩`]{`⟨*name*⟩`}` returns either *true* or *false*. Additionally, it provides the `\ifparam[`⟨*namespace*⟩`]{`⟨*name*⟩`}{`⟨*true code*⟩`}{`⟨*false code*⟩`}` command for top level boolean types. The macro is just a wrapper for the boolean package `ifthen`, which supports spaces in names.

string representing a piece of text. All TeX related symbols in the text, like \, % and #, are escaped.

```
string example:
  type: string
  placeholder: A string
```

```
string example: PeelInc.
```

`\param` A string type can easily be placed in LaTeX using the `\param` command.

number representing a number, like the number type of Lua. In most cases it's necessary to use ⟨*default*⟩ instead of ⟨*placeholder*⟩, especially when the number is used in calculations, since a placeholder will cause errors in LaTeX calculations.

```
number example:
  type: number
  default: -1.21
```

```
number example: 1.21
```

`\param` A number type can be used with `\param`, just like the string type. In version 1.0.0 there was a special command `\numparam`, which is now deprecated as it now is the default implementation for number types using `\param`. When `\numprint` is defined, it will use it for display using `\param`. When `\numprint` isn't defined, it will print a warning message and formats the number as is. The same behavior counts for number types within a `list`, `object` or `table`. Read the documentation of package `numprint` for more information. If you need a nonformatted version of the number, use `\rawparam` instead.

list representing a list of values. The value type is specified by ⟨*value type*⟩. A ⟨*default*⟩ setting can be set. Due to its structure, a ⟨*placeholder*⟩ would

be somewhat incompatible with the corresponding macros. However, a placeholder can be simulated by setting the placeholders as children of the ⟨*default*⟩ list, as demonstrated in the example.

```
list example:
  type: list
  item type: string
  default:
    - A string
    - A second string
```

```
list example:
  - Tomatoes
  - Potatoes
```

`\param` `\paramlistconjunction` Command `\param` concatenates every item with command `\paramlistconjunction`. By default, the conjunction is set to '`,~`'.

`\forlistitem` There's also the `\forlistitem[`⟨*namespace*⟩`]{`⟨*name*⟩`}{`⟨*csname*⟩`}` command, which takes an additional ⟨*csname*⟩ and will execute it for every item in the list. This command doesn't handle advanced features like altering the conjunction. Though, some utility commands will be set, which are only available in the ⟨*csname*⟩s implementation, in order to achieve the same goal.

object representing a list of key value pairs. This parameter type requires a ⟨*fields*⟩ specification to be set. Any field must be of type `bool`, `number` or `string`.

```
object example:
  type: object
  fields:
    name:
      type: string
      placeholder: Your name
    email:
      type: string
      placeholder: Your email
    grade:
      type: number
      default: 5.5
```

```
object example:
  name: John Doe
  email: j.doe@example.com
  grade: 9.5
```

`\paramfield` There is no support for the `\param` command. In order to show to contents there is the `\paramfield[`⟨*namespace*⟩`]{`⟨*name*⟩`}{`⟨*field*⟩`}` command. However, unlike the common command `\param`, the command `\hasparam` does work with object types.

`paramobject` (*env.*) There's also the `paramobject` environment, which takes an optional ⟨*namespace*⟩ and takes the ⟨*name*⟩ of the object as arguments and then defines for every field name a corresponding command. Every command is appended with the `\xspace` command to prevent gobbling a space. In other words, the author doesn't have to end the command with accolades '{}' to get the expected

output.

table representing a table. This parameter type requires a ⟨*columns*⟩ specification to be set. The ⟨*columns*⟩ describes each column by name with its own type specification. Like the object field, only the types `bool`, `number` and `string` are supported column types.

```
table example:
  type: table
  columns:
    description:
      type: string
      placeholder: The
          description
    price:
      type: number
      placeholder: The price
```

```
table example:
  - description: Peeling
      tomatoes
    price: 50
  - description: Peeling
      potatoes
    price: 25
```

`\fortablerow` Like the object, the table has no support for `\param`, but comes with a table specific command `\fortablerow[`⟨*namespace*⟩`]{`⟨*name*⟩`}{`⟨*csname*⟩`}`. The control sequence name ⟨*csname*⟩ is a user-defined command with no arguments, containing any of the column names in a command form. For example, the name `example` would be accessible as `\example` in the user-defined command body.

Like the object field, a table cell doesn't require accolades, though, this is due to the Lua implementation behind it. Technically every command in the user-defined command body is replaced with the variable in Lua, instead of redefining the command itself for every row, preventing issues with macro expansion between table rows and also column separators in TEX.

4 References

[1] Andrew Danforth. *lyaml*. `https://github.com/gvvaughan/lyaml` and `https://luarocks.org/modules/gvvaughan/lyaml`. Accessed: 6 January, 2024.

[2] Harald Harders. *The numprint package. Print numbers with separators and exponent if necessary*. Version 1.39. 2012. URL: `https://ctan.org/pkg/numprint` (visited on 02/12/2024).

[3] Zeping Lee. *The lua-tinyyaml package. A tiny YAML (subset) parser for pure Lua*. Version 0.4.3. URL: `https://ctan.org/pkg/lua-tinyyaml` (visited on 02/12/2024).

[4] *libYAML*. `https://pyyaml.org/wiki/LibYAML` and `https://packages.msys2.org/package/mingw-w64-x86_64-libyaml`. Accessed: 6 January, 2024.

5 Change Log

1.0.3 2nd April 2024

- Release 1.0.3
  — 2nd April 2024
- Add documentation

  - Address YAML preferred implementation - Describe custom LaTeX hooks
  — 2nd April 2024
- Record YAML files
  — 29th March 2024
- Merge remote-tracking branch 'origin/master'
  — 27th March 2024
- Fix LaTeX Hooks

  Predeclare namespace hooks when \loadrecipe is called
  — 27th March 2024
- Add status badge
  — 23rd February 2024
- Build master branch on push
  — 23rd February 2024
- Create release in draft mode
  — 23rd February 2024
- Fix Makefile for win32
  — 23rd February 2024

1.0.2 21st February 2024

- Release 1.0.2
  — 21st February 2024
- Add Continuous Integration and Delivery
  — 21st February 2024
- Merge branch 'win32'

  # Conflicts: # Makefile
  — 20th February 2024
- Fix Makefile for Windows
  — 20th February 2024
- Fix faulty line endings and fix Makefile
  — 19th February 2024
- Merge remote-tracking branch 'origin/master'
  — 12th February 2024

- Update README.md

  Add CTAN version badge
  — 1st February 2024

1.0.1 12th February 2024

- Release 1.0.1
  — 12th February 2024
- Add documentation

  - Add a git changelog - Note numprint dependency - Describe new behavior of number type
  — 12th February 2024
- Fix info print statement
  — 12th February 2024
- Update example document

  - Uses floating number for formatting demonstration purposes - Adds an inner number type for object - Add numprint support
  — 12th February 2024
- Enhance number output

  Numbers will be formatted with numprint if present. This is especially useful when numbers are used in tables or objects, since those environments are hard to typeset using lua-placeholders (expansion order).
  — 12th February 2024

1.0.0 23rd January 2024

- Release 1.0.0
  — 23rd January 2024
- Update documentation
  — 23rd January 2024
- Add tiny yaml support

  Adds fallback support for YAML files with package lua-tinyyaml. Included for Windows users, where libYAML is too hard to install.
  — 23rd January 2024
- Fix license header in manual
  — 15th January 2024
- Replace last occurrence of ELPI
  — 12th January 2024

0.1.0 12th January 2024

- Set version 0.1.0
  — 12th January 2024
- Refactor project name
  — 12th January 2024
- Set listings columns to fullflexible
  — 11th January 2024
- Add tar prefix
  — 10th January 2024

0.0.1 9th January 2024

- Update package date
  — 9th January 2024
- Set version in tarball filename
  — 9th January 2024
- Add Makefile and README
  — 9th January 2024
- Add license
  — 9th January 2024
- Update the docs
  — 9th January 2024
- Add prerequisites to docs
  — 6th January 2024
- Add \numparam macro
  — 5th January 2024
- Add uppercase variant for params
  — 4th January 2024
- Add \PARAM and \rawparam macros
  — 4th January 2024
- Move commandline features to xdp and add namespace hooks
  — 4th January 2024
- Update manual
  — 19th December 2023
- Refactor examples directory
  — 19th December 2023
- Add namespace support
  — 19th December 2023
- Cleanup
  — 7th December 2023
- Fix table format in a macro way
  — 7th December 2023

- Provide better examples
  — 7th December 2023
- Make container types able to have other complex children in Lua
  — 1st December 2023
- Fix formatting table rows
  — 1st December 2023
- Split up lua files
  — 27th November 2023
- Update the docs
  — 27th November 2023
- Add sources
  — 25th November 2023
- Init
  — 17th November 2023

6 Example

The source file `example.tex` is a perfect demonstration of all macros in action. It shows perfectly what happens when there's a ⟨*payload*⟩ file loaded and when not.

The result of this example  is attached in the digital version of this document.

Listing 1: `example.tex`

```
''
\documentclass{article}
\usepackage{gitinfo-lua}
\usepackage{lua-placeholders}
\usepackage{listings}
\usepackage{amsmath}
\usepackage{calc}
\usepackage[dutch,english]{babel}
\usepackage[autolanguage]{numprint}

\loadrecipe[\jobname]{example-specification.yaml}

\setlength{\parindent}{0pt}

\begin{document}
    \title{Lua \paramplaceholder{placeholders} Example\thanks{This
        example corresponds to \texttt{lua-placeholders} version \
        gitversion{} written on \gitdate.}}
    \author{\dogitauthors[\\]}
    \maketitle

    \section*{Basics}
    Wrong parameter:\\

    \lstinline[style=TeX,morekeywords={param}]|\param{non existing}|
    $\implies$
    \param{non existing}\\

    Conditional Parameter:\\

    \lstinline[style=TeX,morekeywords={hasparam}]|\hasparam{list
        example}{is set}{is not set}|
    $\implies$
    \hasparam{list example}{is set}{is not set}

    \section*{Before values loaded}

    Boolean example:\\
```

```
55
56      \lstinline[style=TeX,morekeywords={param}]|\param{bool example}|
57      $\implies$
58      \param{bool example}\\
59
60      \lstinline[style=TeX,morekeywords={ifparam}]|\ifparam{bool
            example}{TRUE}{FALSE}|
61      $\implies$
62      \ifparam{bool example}{TRUE}{FALSE}\\
63
64      String example:\\
65
66      \lstinline[style=TeX,morekeywords={param}]|\param{string example
            }|
67      $\implies$
68      ``\param{string example}''\\
69
70      Number example:\\
71
72      \lstinline[style=TeX,morekeywords={rawparam}]|\rawparam{\jobname
            }{number example}|
73      $\implies$
74      \rawparam{\jobname}{number example}\\
75
76      \lstinline[style=TeX,morekeywords={param}]|\param{number example
            }|
77      $\implies$
78      \lstinline[style=TeX,morekeywords={numprint}]|\numprint{|\
            rawparam{\jobname}{number example}\verb|}|
79      $\implies$
80      \param{number example}\\
81
82      \clearpage
83
84      Number in foreign language:\\
85
86      \lstinline[style=TeX,morekeywords={param,selectlanguage}]|\
            selectlanguage{dutch}\param{number example}|\\
87      $\implies$
88      \begingroup\selectlanguage{dutch}\param{number example}\endgroup
            \\
89
90      List example:\\
91
92      \lstinline[style=TeX,morekeywords={param}]|\param{list example}|
93      $\implies$
```

```
    \param{list example}\\

    \begin{lstlisting}[language={[LaTeX]TeX},morekeywords={
        formatitem,forlistitem}]
\begin{enumerate}
    \newcommand\formatitem[1]{\item #1}
    \forlistitem{list example}{formatitem}
\end{enumerate}
    \end{lstlisting}
    $\implies$
    \begin{enumerate}
        \newcommand\formatitem[1]{\item #1}
        \forlistitem{list example}{formatitem}
    \end{enumerate}

    Object example:\\

    \lstinline[style=TeX,morekeywords={paramfield}]|\paramfield{
        object example}{name}|\\
    \lstinline[style=TeX,morekeywords={paramfield}]|\paramfield{
        object example}{email}|\\
    \lstinline[style=TeX,morekeywords={paramfield}]|\paramfield{
        object example}{grade}|\\
    $\implies$
    \paramfield{object example}{name}
    \paramfield{object example}{email}
    \paramfield{object example}{grade}\\

    \begin{lstlisting}[style=TeX,morekeywords={name,email,grade}]
\newcommand\name{...}
\begin{paramobject}{object example}
    \name \email \grade
\end{paramobject}
% And here it works again
\name
    \end{lstlisting}
    $\implies$
    \newcommand\name{...}%
    \parbox{\linewidth}{
    \begin{paramobject}{object example}
        \name \email \grade
    \end{paramobject}
    \name
    }\\

    Table example:\\
```

```
136
137     \begin{lstlisting}[style=TeX,morekeywords={nprounddigits,
            npnoround,formatrow,fortablerow,description,price}]
138 \nprounddigits{2}
139 \newcommand\formatrow{\description & \price \\}%
140 \begin{tabular}{l | l}
141     \textbf{Description} & \textbf{Price} \\ \hline
142     \fortablerow{table example}{formatrow}
143 \end{tabular}
144 \npnoround
145     \end{lstlisting}
146     $\implies$
147     \nprounddigits{2}
148     \newcommand\formatrow{\description & \price \\}%
149     \begin{tabular}{l | l}
150         \textbf{Description} & \textbf{Price} \\ \hline
151         \fortablerow{table example}{formatrow}
152     \end{tabular}
153     \npnoround
154
155
156     \section*{After values loaded}
157     \loadpayload[\jobname]{example.yaml}
158
159     Boolean example:\\
160
161     \lstinline[style=TeX,morekeywords={param}]|\param{bool example}|
162     $\implies$
163     \param{bool example}\\
164
165     \lstinline[style=TeX,morekeywords={ifparam}]|\ifparam{bool
            example}{TRUE}{FALSE}|
166     $\implies$
167     \ifparam{bool example}{TRUE}{FALSE}\\
168
169     String example:\\
170
171     \lstinline[style=TeX,morekeywords={param}]|\param{string example
            }|
172     $\implies$
173     ``\param{string example}''\\
174
175     Number example:\\
176
177     \lstinline[style=TeX,morekeywords={rawparam}]|\rawparam{\jobname
            }{number example}|
```

```
    $\implies$
    \rawparam{\jobname}{number example}\\

    \lstinline[style=TeX,morekeywords={param}]|\param{number example
        }|
    $\implies$
    \lstinline[style=TeX,morekeywords={numprint}]|\numprint{|\
        rawparam{\jobname}{number example}\verb|}|
    $\implies$
    \param{number example}\\

    Number in foreign language:\\

    \lstinline[style=TeX,morekeywords={param,selectlanguage}]|\
        selectlanguage{dutch}\param{number example}|\\
    $\implies$
    \lstinline[style=TeX,morekeywords={numprint}]|\numprint{|\
        rawparam{\jobname}{number example}\lstinline|}|
    $\implies$
    \begingroup\selectlanguage{dutch}\param{number example}\endgroup
        \\

    List example:\\

    \lstinline[style=TeX,morekeywords={param}]|\param{list example}|
    $\implies$
    \param{list example}\\

    \begin{lstlisting}[language={[LaTeX]TeX},morekeywords={
        formatitem,forlistitem}]
\begin{enumerate}
    \newcommand\formatitem[1]{\item #1}
    \forlistitem{list example}{formatitem}
\end{enumerate}
    \end{lstlisting}
    $\implies$
    \begin{enumerate}
        \newcommand\formatitem[1]{\item #1}
        \forlistitem{list example}{formatitem}
    \end{enumerate}

    Object example:\\

    \lstinline[style=TeX,morekeywords={paramfield}]|\paramfield{
        object example}{name}|\\
    \lstinline[style=TeX,morekeywords={paramfield}]|\paramfield{
```

```
        object example}{email}|\\
217     \lstinline[style=TeX,morekeywords={paramfield}]|\paramfield{
        object example}{grade}|\\
218     $\implies$
219     \paramfield{object example}{name}
220     \paramfield{object example}{email}
221     \paramfield{object example}{grade}\\
222
223     \begin{lstlisting}[style=TeX,morekeywords={name,email,grade}]
224 \newcommand\name{...}
225 \begin{paramobject}{object example}
226     \name \email \grade
227 \end{paramobject}
228 % And here it works again
229 \name
230     \end{lstlisting}
231     $\implies$
232     \parbox{\linewidth}{
233     \begin{paramobject}{object example}
234         \name \email \grade
235     \end{paramobject}
236     \name
237     }\\
238
239     Table example:\\
240
241     \begin{lstlisting}[style=TeX,morekeywords={nprounddigits,
        npnoround,formatrow,fortablerow,description,price}]
242 \nprounddigits{2}
243 \newcommand\formatrow{\description & \price \\}%
244 \begin{tabular}{l | l}
245     \textbf{Description} & \textbf{Price} \\ \hline
246     \fortablerow{table example}{formatrow}
247 \end{tabular}
248 \npnoround
249     \end{lstlisting}
250     $\implies$
251     \nprounddigits{2}%
252     \begin{tabular}{l | l}
253         \textbf{Description} & \textbf{Price} \\ \hline
254         \fortablerow{table example}{formatrow}
255     \end{tabular}
256
257     \section*{Payload File}
258     \lstinputlisting[language=YAML,numbers=left,xleftmargin={15pt},
        caption={example.yaml},columns=fullflexible]{example.yaml}
```

```
259
260     \section*{Specification File}
261     \lstinputlisting[language=YAML,numbers=left,xleftmargin=15pt,
            caption={example-specification.yaml},columns=fullflexible]{
            example-specification.yaml}
262 \end{document}
```