

Package ‘S7schema’

May 7, 2026

Title 'S7' Framework for Schema-Validated YAML Configuration

Version 0.1.0

Description Provides a generic framework for working with YAML (YAML Ain't Markup Language) configuration files. Uses 'ajv' (Another JSON Schema Validator) via 'V8' to validate configurations against JSON Schema definitions. Configuration objects inherit from 'S7' classes and base lists, supporting downstream extension through custom classes and methods.

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URL <https://novonordisk-opensource.github.io/S7schema/>,
<https://github.com/NovoNordisk-OpenSource/S7schema>

BugReports <https://github.com/NovoNordisk-OpenSource/S7schema/issues>

Depends R (>= 4.1)

Imports cli, rlang, S7, tools, V8, yaml (>= 2.3.8)

Suggests jsonlite, knitr, purrr, rmarkdown, testthat (>= 3.0.0),
tibble, tidyr, withr

VignetteBuilder knitr

Config/testthat/edition 3

Encoding UTF-8

RoxygenNote 7.3.3

NeedsCompilation no

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Date/Publication 2026-03-13 13:10:21 UTC

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document_schema	<i>Document configuration schema</i>
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Description

Creates markdown documentation of a configuration suitable for use in e.g. vignettes to provide easy readable documentation for users.

Usage

```
document_schema(x, header_start_level = 1L)
```

Arguments

`x` character(1) path to JSON schema, list() of already loaded specifications, or S7schema() object.

`header_start_level` numeric(1) Level of initial header. All subheaders will continuously be one level smaller.

Value

character(1)/knitr::asis_output() markdown with the documentation.

Examples

```
# Simple example schema
system.file("examples/schema.json", package = "S7schema") |>
  document_schema(2) |>
  cat()

# Changing header start level to 1
system.file("examples/schema.json", package = "S7schema") |>
  document_schema(1) |>
```

```
cat()

# Example with definitions
system.file("examples/definitions.json", package = "S7schema") |>
  document_schema(2) |>
  cat()
```

S7schema

Work with valid configurations

Description

`S7schema()` provides a generic way of working with yaml configuration files.

The object is created by supplying both an initial YAML configuration (`file`) and the JSON schema definition (`schema`) of the configuration file.

The initial configuration is validated before the new object is returned. If not valid the first error is thrown, together with a path to the entry in the YAML file, and a description of the error.

The `S7schema` class inherits from `list`, ensuring that the content of the YAML file can be accessed as if read directly with `yaml::read_yaml()`, and supports the below workflow:

1. Read and validate config file: `x <- S7schema(...)`
2. Edit content as if it was a list: `x$new_entry <- "new_value"`
3. Validate new content against the original schema: `validate(x)`
4. Use values in downstream functions: `x$new_entry`

Usage

```
S7schema(file, schema)
```

Arguments

<code>file</code>	character(1) path to a yaml file to be checked.
<code>schema</code>	character(1) path to a JSON schema.

Details

See internal `validator()` documentation for more info on how the validation is done.

Value

New `S7schema` object.

Properties

schema character(1) path to JSON schema being used to validate against.

validator Internal `validator()` used to validate the content (read-only).

file character(1) path to the source YAML file.

Examples

```
# Work with yaml configuration file:
S7schema(
  file = system.file("examples/config.yaml", package = "S7schema"),
  schema = system.file("examples/schema.json", package = "S7schema")
)
```

to_yaml

Convert an R object to YAML

Description

This function is used internally when validating list or S7schema objects, and when using write_config() to save a configuration.

Underneath it is calling yaml::as.yaml() to do the conversion, but all logical values are converted to true/false instead of yes/no respectively for a more robust integration with other YAML parsers.

It is rarely relevant to call this function directly except for debugging purposes, or when implementing a new method for your own object class.

Usage

```
to_yaml(x)
```

Arguments

x object to convert to YAML.

Details

to_yaml() dispatches based on the class of x. Register a new S7 method if you want to overwrite how your own class is converted to YAML. See S7::method() for more information.

The default method just uses yaml::verbatim_logical() to overwrite the default behavior of handling logical values:

```
function(x) {
  yaml::as.yaml(
    x = x,
    handlers = list(
      logical = yaml::verbatim_logical
    )
  )
}
```

Copy this and add your own additional handlers when implementing a new method.

Value

character(1) YAML string.

Examples

```
# Convert simple list to YAML
to_yaml(list(hello = "world", is_today = TRUE)) |>
  cat()

# Convert S7schema object
x <- S7schema(
  file = system.file("examples/config.yml", package = "S7schema"),
  schema = system.file("examples/schema.json", package = "S7schema")
)

print(x)

to_yaml(x) |>
  cat()
```

validate_config

One-shot validation of configurations

Description

Check if a configuration is in accordance with a JSON schema definition.

It is possible to either validate an existing list object in memory or an existing yaml configuration file.

Usage

```
validate_list(x, schema)
```

```
validate_yaml(file, schema)
```

Arguments

x	list object to validate
schema	character(1) path to a JSON schema.
file	character(1) path to a yaml file to be checked.

Details

See internal [validator\(\)](#) documentation for more info on how the validation is done.

Value

- `validate_list()`: invisible(x)
- `validate_yaml()`: invisible(file)

See Also

[S7schema\(\)](#)

Examples

```
# Validate list object in memory
validate_list(
  x = list(my_config_var = 1),
  schema = system.file("examples/schema.json", package = "S7schema")
) |>
print()

# Validate yaml file on disk
validate_yaml(
  file = system.file("examples/config.yml", package = "S7schema"),
  schema = system.file("examples/schema.json", package = "S7schema")
) |>
print()
```

write_config

Write YAML configuration file

Description

Thin wrapper around `to_yaml()` calling `validate()` before converting to YAML and creating the file, ensuring that the saved configuration is valid.

Usage

```
write_config(x, file = x@file)
```

Arguments

x S7schema object to write.
file character(1) path to the file to write to. Defaults to `x@file` if not provided.

Value

Invisible x (the input S7schema object). Called for side effect of writing the file.

Examples

```
# Read configuration file:
x <- S7schema(
  file = system.file("examples/config.yml", package = "S7schema"),
  schema = system.file("examples/schema.json", package = "S7schema")
)

print(x)

# Edit content
x$my_config_var <- 2

# Save new file
write_config(
  x = x,
  file = tempfile(fileext = ".yml")
)
```

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