

# Package ‘xlum’

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**Type** Package

**Title** Read, Write, and Convert xlum Data

**Version** 0.1.0.9000-40

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**Description** Support for the xlum-file format for exchange and long-term preservation of luminescence data.

**License** GPL-3

**Depends** R (>= 4.1),  
utils

**Imports** methods,  
Luminescence (>= 0.9.19),  
xml2 (>= 1.3.3)

**Suggests** spelling (>= 2.2),  
testthat (>= 3.1.3)

**Encoding** UTF-8

**Language** en-GB

**LazyData** true

**RoxygenNote** 7.1.2

**Collate** 'convert\_rlum2xlum.R'  
'methods.R'  
'read\_xlum.R'  
'utils.R'  
'validate\_xlum.R'  
'write\_xlum.R'  
'xlum-package.R'

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xlum-package

*Read, Write, and Convert xlum Data*


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## Description

Support for the xlum-file format for exchange and long-term preservation of luminescence data.

## Details

### Support contact

- <https://github.com/R-Lum/xlum/discussions>

### Bug reporting

- <https://github.com/R-Lum/xlum/issues>

### Project source code repository

- <https://github.com/R-Lum/xlum>

### Package maintainer

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### Funding

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convert\_rlum2xlum

*Convert RLum-class objects to the XLUM format*


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## Description

Converts [Luminescence::RLum](#) objects to xlum format

## Usage

```
convert_rlum2xlum(rlum, file = NULL)
```

## Arguments

rlum	<a href="#">Luminescence::RLum.Data</a> and <a href="#">Luminescence::RLum.Analysis</a> or a <a href="#">list</a> of it ( <b>required</b> ): input for the conversion
file	<a href="#">character</a> ( <i>optional</i> ): file name for the export, if NULL (the default), an <a href="#">xml2::xml_document</a> object is returned

## Details

The function tries to make a best possible conversion of the [Luminescence::RLum](#) to the xlum format. [Luminescence::RLum.Results](#) objects are not supported.

Because of the nature the [Luminescence::RLum](#) structure, the nodes `<xlum/>`, `<sample/>` are set automatically because the [Luminescence::RLum](#) does not distinguish between different samples.

## Value

Depending on the setting. If `file == NULL` an [xml2::xml\\_document](#) object is returned, if file is set the function attempts to write an `*.xlum` file'.

## Function version

0.1.0

## How to cite

Kreutzer, S., 2022. `convert_rlum2xlum()`: Convert RLum-class objects to the XLUM format. Function version 0.1.0. In: Kreutzer, S., 2022. xlum: Read, Write, and Convert xlum Data. R package version 0.1.0.9000-40.

## Author(s)

Sebastian Kreutzer, Geography & Earth Sciences, Aberystwyth University (United Kingdom)

## See Also

[Luminescence::RLum.Data](#), [write\\_xlum](#)

## Examples

```
data(ExampleData.RLum.Analysis, envir = environment(), package = "Luminescence")
convert_rlum2xlum(IRSAR.RF.Data)
```

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read\_xlum

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*Import xlum files*


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## Description

Imports xlum files using [xml2::read\\_xml](#). Comes with a few convenience features, such as the transformation of string lists to numeric vectors where meaningful.

## Usage

```
read_xlum(file, verify = TRUE, output = "xlum_list")
```

## Arguments

file	<a href="#">character</a> ( <b>required</b> ): path to file
verify	<a href="#">logical</a> ( <i>with default</i> ): enable/disable format validation
output	<a href="#">character</a> ( <i>with default</i> ): output object of the import, supported are "xml_document", "list", "xlum_list" (the default)

## Details

### Supported output options

"xlum\_list" (default): imports XML-data and coerces them to list. Numeric values for level <curve> are transposed into [numeric](#) vectors for better handling

"list": imports XML-data and coerces it to a [list](#), no further treatment of data

"xml\_document": unprocessed output from [xml2::read\\_xml](#)

### Value

The output depends on the setting selected in output. It will be either an [xml2::xml\\_document](#), [list](#), or a [list](#) of class `xlum_list`.

### Function version

0.1.0

### How to cite

Kreutzer, S., 2022. `read_xlum()`: Import xlum files. Function version 0.1.0. In: Kreutzer, S., 2022. `xlum`: Read, Write, and Convert xlum Data. R package version 0.1.0.9000-40.

### Author(s)

Sebastian Kreutzer, Geography & Earth Sciences, Aberystwyth University (United Kingdom)

### See Also

[xml2::read\\_xml](#), [validate\\_xlum](#), [write\\_xlum](#)

### Examples

```
file <- system.file("extdata/xlum_example.xlum", package="xlum")
read_xlum(file)
```

---

`validate_xlum`*Validate xlum format against an XSD reference schema*

---

### Description

A convenience wrapper around [xml2::xml\\_validate](#) against the reference format description shipped with [xlum-package](#)

### Usage

```
validate_xlum(file)
```

### Arguments

`file` [xml2::xml\\_document](#) (**required**): object to test

**Value**

Results of the validation [logical](#) with attributes

**How to cite**

Kreutzer, S., 2022. `validate_xlum()`: Validate xlum format against an XSD reference schema. In: Kreutzer, S., 2022. xlum: Read, Write, and Convert xlum Data. R package version 0.1.0.9000-40.

**Author(s)**

Sebastian Kreutzer, Geography & Earth Sciences, Aberystwyth University

**Examples**

```
file <- system.file("extdata/xlum_prototype.xlum", package = "xlum")
validate_xlum(file)
```

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write_xlum	<i>Write xlum files</i>
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**Description**

Create xlum files using [xml2::read\\_xml](#)

**Usage**

```
write_xlum(x, file, ...)
```

**Arguments**

x	xlum_list, <a href="#">list</a> , <a href="#">xml2::xml_document</a> ( <b>required</b> ) : input object
file	<a href="#">character</a> ( <b>required</b> ): valid file path and file name with ending .xlum (will be add automatically if needed)
...	further arguments to be passed to <a href="#">xml2::write_xml</a>

**Value**

Creates an XML-file with ending \*.xlum

**Function version**

0.1.0

**How to cite**

Kreutzer, S., 2022. `write_xlum()`: Write xlum files. Function version 0.1.0. In: Kreutzer, S., 2022. xlum: Read, Write, and Convert xlum Data. R package version 0.1.0.9000-40.

**Author(s)**

Sebastian Kreutzer, Geography & Earth Sciences, Aberystwyth University (united Kingdom)

**See Also**

[xml2::write\\_xml](#), [read\\_xlum](#)

**Examples**

```
file <- system.file("extdata/xlum_prototype.xlum", package="xlum")
out_file <- tempfile()

xlum_data <- read_xlum(file)
write_xlum(xlum_data, out_file)
```

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