

Package: zuxml (via r-universe)

October 27, 2026

Title Small XML Parser and Document Tree

Version 0.1.0

Description Reads, navigates, and writes XML documents using a bundled copy of the 'Expat' parser (<https://libexpat.github.io/>), so that no system XML library is required. Documents are parsed into a faithful immutable tree exposed through a small vectorized navigation interface. Parsing is strict by default: document type declarations are rejected, external entity resolution is not compiled in, and configurable limits bound nesting depth and memory use. A registered C interface allows other packages to parse XML without linking against the parser themselves, and to feed it incrementally so that a large document need not be held in memory all at once.

License MIT + file LICENSE

Copyright See inst/COPYRIGHTS.

URL <https://github.com/pedrobtz/zuxml>,
<https://pedrobtz.github.io/zuxml/>

BugReports <https://github.com/pedrobtz/zuxml/issues>

Depends R (>= 4.1)

Suggests knitr, rmarkdown, testthat (>= 3.0.0)

Config/testthat/edition 3

VignetteBuilder knitr

Encoding UTF-8

Config/roxygen2/version 8.1.1

NeedsCompilation yes

Author Pedro Baltazar [aut, cre, cph], Clark Cooper [ctb] (author of the bundled Expat library), Fred L. Drake, Jr. [ctb] (author of the bundled Expat library), Greg Stein [ctb] (author of the bundled Expat library), James Clark [ctb] (author of the bundled Expat library), Karl Waclawek [ctb] (author of the bundled Expat library), Rhodri James [ctb] (author of the

bundled Expat library), Sebastian Pipping [ctb] (author of the bundled Expat library and contributor to siphash.h), Steven Solie [ctb] (author of the bundled Expat library), William Ahern [ctb] (derived the bundled SipHash implementation (siphash.h)), Jean-Philippe Aumasson [ctb] (co-author of the SipHash reference implementation (siphash.h)), Daniel J. Bernstein [ctb] (co-author of the SipHash reference implementation (siphash.h)), Victor Stinner [ctb] (contributor to siphash.h)

Maintainer Pedro Baltazar <pedrobtz@gmail.com>

Repository <https://cran.r-universe.dev>

Date/Publication 2026-10-27 18:52:06 UTC

RemoteUrl <https://github.com/cran/zuxml>

RemoteRef HEAD

RemoteSha c278846179dd80e9ad2578c85a440437ba6b56aa

Contents

xml_metadata	2
xml_navigate	3
xml_parse	4
xml_properties	6
xml_serialize	7
xml_table	8
zuxml-conditions	9
zuxml_info	10

Index	12
--------------	-----------

xml_metadata	<i>Document metadata</i>
--------------	--------------------------

Description

Document metadata

Usage

- xml_version(x)
- xml_encoding(x)
- xml_standalone(x)

Arguments

x A zuxml_document.

Value

A length-1 vector: a character string for xml_version() and xml_encoding(), a logical for xml_standalone(). Each is NA when the XML declaration did not state that property.

Examples

```
xml_encoding(xml_parse('<?xml version="1.0" encoding="UTF-8"><a/>'))
```

xml_navigate	<i>Navigate an XML document</i>
--------------	---------------------------------

Description

Every accessor is vectorized: given a nodeset of length n it returns a result of length n, and the traversal functions return a single flat nodeset.

Usage

```
xml_root(x)
xml_parent(x)
xml_children(x)
xml_elements(x, name = NULL, ns = NULL)
xml_find(x, name = NULL, ns = NULL)
xml_find_first(x, name = NULL, ns = NULL)
```

Arguments

x A zuxml_document, node, or nodeset.

name Local name to match, or NULL for any.

ns Namespace URI, NA for none, NULL for any.

Details

Filtering is uniform. `name` matches the *local* name. `ns = NULL` matches any namespace, `ns = NA` matches only nodes in no namespace, and a string matches that namespace URI. Matching never considers the prefix: two prefixes bound to one URI are the same name.

`xml_elements()` and `xml_find()` return elements only, including when `name` is `NULL`: they search by name, and only elements have one. Use `xml_children()` to reach text, comment and processing-instruction nodes, which it returns along with elements.

`xml_find()` returns one flat nodeset, so it cannot keep results aligned with its input: if one `<book>` has no `<title>`, the titles no longer line up with the books. `xml_find_first()` returns exactly one node per input node, its first matching descendant in document order, or a **missing node** when there is none.

A missing node gives `NA` from every accessor (`xml_name()`, `xml_text()`, `xml_attr()`, `xml_type()` and the rest) and from `xml_serialize()`, and an empty named vector from `xml_attrs()`. Traversals skip it: it has no parent, children or descendants. `xml_attr()`'s default applies to it, as to any node lacking the attribute.

Value

`xml_root()`, `xml_parent()`, `xml_children()`, `xml_elements()`, `xml_find()` and `xml_find_first()` return a nodeset. `xml_find_first()`'s has the length of `x`.

Examples

```
doc <- xml_parse("<r><a><b>1</b></a><b>2</b></r>")
xml_name(xml_children(xml_root(doc)))
xml_text(xml_find(doc, "b"))

# One result per book, NA where a book has no title.
books <- xml_elements(xml_root(xml_parse(
  "<r><book><title>A</title></book><book/><book><title>C</title></book></r>"))
xml_text(xml_find_first(books, "title"))
```

xml_parse

Parse an XML document

Description

`xml_parse()` parses XML held in memory; `xml_read()` parses a file, a URL or a connection.

Usage

```
xml_parse(
  x,
  encoding = NULL,
  comments = TRUE,
  pis = TRUE,
```

```

    allow_doctype = FALSE,
    max_depth = 256L,
    max_nodes = 1e+07,
    max_attrs = 4096L,
    max_text = 64 * 1024^2,
    max_memory = 1024 * 1024^2
  )

xml_read(path, encoding = NULL, ...)

```

Arguments

<code>x</code>	A single string, or a raw vector, containing XML. A character vector of any other length is an error: to parse lines read with <code>readLines()</code> , join them first with <code>paste(x, collapse = "\n")</code> .
<code>encoding</code>	Encoding of the input. <code>NULL</code> (default) lets the parser detect it from a byte-order mark or the XML declaration. An explicit value overrides the declaration, which is what an HTTP charset should do. Encodings that Expat cannot handle natively are transcoded with <code>iconv()</code> . A character <code>x</code> is always UTF-8 by the time it is parsed, so for one, encoding must be <code>NULL</code> or <code>"UTF-8"</code> .
<code>comments, pis</code>	Retain comment and processing-instruction nodes.
<code>allow_doctype</code>	Accept a DOCTYPE declaration. An internal subset is rejected even when this is <code>TRUE</code> , because it is the only place a document can declare entities.
<code>max_depth, max_nodes, max_attrs, max_text, max_memory</code>	Resource limits: the nesting depth, the number of nodes, the attributes on one element, the bytes in one text node, and the bytes the document may allocate. Each must be a single positive whole number, or <code>Inf</code> for the largest value the parser can represent. <code>max_nodes</code> is capped at <code>.Machine\$integer.max</code> , because node ids are R integers. Each limit has its own error condition.
<code>path</code>	Path to a file, a URL, or a connection .
<code>...</code>	Passed on to <code>xml_parse()</code> .

Details

Parsing is strict and secure by default: document type declarations are rejected, general entities are not compiled in at all, and the limits below bound what a hostile document can cost. See `vignette("security")` for the threat model, or `zuxml_info()` for the compiled-in policy.

`xml_read()` streams its input: bytes are fed to the parser as they are read, so the document is never held whole in memory, only the tree is. A string is taken as a URL if it starts with `http://`, `https://`, `ftp://`, `ftps://` or `file://`, and is otherwise a path. A [connection](#) that is not open is opened in binary mode for the call and closed afterwards; one that is already open must be in binary mode (`"rb"`) and blocking, is read from its current position, and is left open. An encoding that Expat cannot handle natively needs the whole input before it can be transcoded, so that case is read fully first.

Value

A `zuxml_document`.

See Also

[zuxml-conditions](#) for the errors these raise.

Examples

```
doc <- xml_parse("<catalog><book id='1'><title>XML</title></book></catalog>")
xml_text(xml_find(doc, "title"))

f <- tempfile(fileext = ".xml")
xml_write(doc, f)
xml_read(f)
xml_read(gzfile(f))          # any connection, compressed or not
xml_read(paste0("file://", f))
## Not run:
xml_read("https://www.w3.org/TR/2008/REC-xml-20081126/REC-xml-20081126.xml")

## End(Not run)
```

xml_properties	<i>Read properties of XML nodes</i>
----------------	-------------------------------------

Description

All of these are vectorized over a nodeset.

Usage

```
xml_name(x)

xml_local(x)

xml_ns(x)

xml_prefix(x)

xml_type(x)

xml_attrs(x)

xml_attr(x, name, ns = NULL, default = NA_character_)

xml_text(x, recursive = TRUE, trim = FALSE)
```

Arguments

x	A node or nodeset.
name	Attribute local name.

ns	Namespace URI, NA for none, NULL for any.
default	Value for nodes lacking the attribute.
recursive	Concatenate text of all descendants (default) or only direct text children.
trim	Trim leading and trailing whitespace from the result.

Value

A character vector, except `xml_attr()` which returns a list of named character vectors.

Examples

```
doc <- xml_parse("<p>Hello <em>XML</em> world</p>")
xml_text(xml_root(doc))
xml_text(xml_root(doc), recursive = FALSE)
```

xml_serialize	<i>Serialize XML</i>
---------------	----------------------

Description

Writes a node and its subtree back to XML text.

Usage

```
xml_serialize(x, declaration = FALSE)

xml_write(x, path, declaration = TRUE)

## S3 method for class 'zuxml_nodeset'
as.character(x, ...)

## S3 method for class 'zuxml_document'
as.character(x, ...)
```

Arguments

x	A <code>zuxml_document</code> , node, or nodeset.
declaration	Prepend an XML declaration.
path	File to write to.
...	Ignored.

Details

Element order, attribute order, text order, mixed-content interleaving and namespace semantics are preserved. The original *formatting* is not: parsing does not retain quote style, whitespace between attributes, CDATA boundaries, entity spelling, or whether an empty element was written as `<a/>` or `<a></a>`. zuxml is not a lossless source editor.

Each element of the result is escaped for its own node. Two adjacent text nodes – which is what comments = FALSE or pis = FALSE leaves behind where a dropped node used to sit – are therefore escaped independently, so concatenating the pieces yourself can produce content a parser will reject. Serialize the common parent instead, which escapes across the whole subtree.

Value

xml_serialize() returns a character vector, one element per node. xml_write() returns path invisibly.

Examples

```
doc <- xml_parse("<p>Hello <em>XML</em> world</p>")
xml_serialize(doc)
```

xml_table

Extract tables and lists

Description

xml_table() turns table elements into data frames, and xml_list() turns ul and ol elements into R lists. Both read well-formed XML, such as XHTML or a table embedded in another XML format. They do not apply HTML parsing rules: a table without tbody has exactly the rows it contains.

Usage

```
xml_table(x, header = NA, trim = TRUE, ns = NULL, max_cells = 1e+07)
```

```
xml_list(x, trim = TRUE, ns = NULL)
```

Arguments

x	A node or nodeset of table elements for xml_table(), or of ul and ol elements for xml_list(). A document stands for its root.
header	Use the first row as column names. NA, the default, does so when every cell of the first row is a th.
trim	Trim leading and trailing whitespace from each value.
ns	Namespace URI of the table or list elements, NA for none, NULL for any.
max_cells	The most cells one table may expand to. A positive whole number, or Inf.

Details

Tables. The rows are the `tr` elements that are children of the table, or of its `thead`, `tbody` or `tfoot`, in document order. A table nested inside a cell is not descended into; extract it separately. The cells are the `td` and `th` elements of a row, and a cell's value is its text, as `xml_text()` gives it. Every column is character: convert types yourself, for example with `type.convert(df, as.is = TRUE)`.

`colspan` and `rowspan` are expanded by repeating the cell's value. A span that is not a positive whole number counts as 1, and spans are capped at HTML's own limits, 1000 columns and 65534 rows. A row span never adds rows past the end of the table. Short rows are padded with NA.

Expansion can make a small document produce a very large table, so the expanded size of each table is bounded by `max_cells`, and exceeding it is a `zuxml_limit_error`.

Lists. Each `li` child of a `ul` or `ol` becomes one item. An item is its text as a string or, when the `li` has `ul` or `ol` children, a list with two elements: `text`, the item's own text without the nested lists', and `items`, the items of its nested lists, extracted the same way. Only direct `ul` and `ol` children of an `li` count as nested lists. Comments and processing instructions inside an item are ignored.

Value

A list with one element per node in `x`: a data frame for `xml_table()`, a list of items for `xml_list()`.

See Also

`xml_find()` to locate the tables or lists in a document, and [zuxml-conditions](#) for the errors these raise.

Examples

```
doc <- xml_parse("<table>
  <tr><th>fruit</th><th>price</th></tr>
  <tr><td>apple</td><td>1.20</td></tr>
  <tr><td>pear</td><td>0.90</td></tr>
</table>")
xml_table(xml_root(doc))[[1]]

doc <- xml_parse("<ul>
  <li>fruit<ul><li>apple</li><li>pear</li></ul></li>
  <li>bread</li>
</ul>")
str(xml_list(xml_root(doc))[[1]])
```

Description

Every error `zuxml` raises carries a condition class, so that it can be caught by `kind` rather than by matching the message, which is not stable. Every class below is a subclass of `zuxml_error`.

Details

`zuxml_invalid_argument` An argument was not usable: an `x` that is not a single string or a raw vector, an encoding other than UTF-8 for character input, a limit that is not a positive whole number, or a flag that is not TRUE or FALSE.

`zuxml_parse_error` The input is not well-formed XML, ends too early, or references an undefined entity.

`zuxml_encoding_error` The input is not valid in its encoding, or names an encoding that neither Expat nor `iconv()` can read.

`zuxml_doctype_error` The document has a DOCTYPE declaration and `allow_doctype` is FALSE, or it has an internal subset, which is refused either way.

`zuxml_limit_error` A resource limit was reached. The subclasses `zuxml_depth_limit`, `zuxml_node_limit`, `zuxml_attr_limit`, `zuxml_text_limit` and `zuxml_memory_limit` name which one. `xml_serialize()` raises the parent class alone when a node's text is longer than an R string can hold.

`zuxml_memory_error` An allocation failed.

`zuxml_cancelled` A handler stopped the parse. It can only happen through the C API, where a downstream package supplies the handler; no exported R function raises it.

A condition raised by a parse carries `line`, `column` and `byte_offset`, the position where the parser stopped; `status`, the C status's enumerator name, such as "ZUX_ERR_DEPTH_LIMIT"; and `expat_code`, Expat's own error code, which is NA when the failure was not Expat's. It is there for diagnostics: do not branch on it. A limit error also carries `limit`, the argument's name, such as "max_depth", and `limit_value`, the value it was given. A `zuxml_invalid_argument` condition carries `arg`, the name of the argument at fault.

Examples

```
tryCatch(
  xml_parse("<a><b></a>"),
  zuxml_parse_error = function(e) c(line = e$line, column = e$column)
)
tryCatch(
  xml_parse("<a><b/></a>", max_depth = 1),
  zuxml_limit_error = function(e) e$limit
)
```

zuxml_info

Report the zuxml build configuration

Description

Reports the vendored 'Expat' version and the parser policy compiled into this build. Intended for diagnostics and for security audits: in a correctly built zuxml, `dtd` and `general_entities` are both FALSE and `entropy` names a real operating-system entropy source.

Usage

```
zuxml_info()
```

Value

An object of class `zuxml_info`: a list with elements `zuxml_version`, `expat_version`, `namespaces`, `dtd`, `general_entities`, `context_bytes`, `xml_char_bytes`, `byteorder`, `entropy` and `parser_ok`.

Examples

```
zuxml_info()
```

Index

as.character.zuxml_document
 (xml_serialize), 7
as.character.zuxml_nodeset
 (xml_serialize), 7

connection, 5

iconv(), 5, 10

readLines(), 5

xml_attr(xml_properties), 6
xml_attr(), 4
xml_attrs(xml_properties), 6
xml_attrs(), 4
xml_children(xml_navigate), 3
xml_elements(xml_navigate), 3
xml_encoding(xml_metadata), 2
xml_find(xml_navigate), 3
xml_find(), 9
xml_find_first(xml_navigate), 3
xml_list(xml_table), 8
xml_local(xml_properties), 6
xml_metadata, 2
xml_name(xml_properties), 6
xml_name(), 4
xml_navigate, 3
xml_ns(xml_properties), 6
xml_parent(xml_navigate), 3
xml_parse, 4
xml_prefix(xml_properties), 6
xml_properties, 6
xml_read(xml_parse), 4
xml_root(xml_navigate), 3
xml_serialize, 7
xml_serialize(), 4, 10
xml_standalone(xml_metadata), 2
xml_table, 8
xml_text(xml_properties), 6
xml_text(), 4, 9

xml_type(xml_properties), 6
xml_type(), 4
xml_version(xml_metadata), 2
xml_write(xml_serialize), 7

zuxml-conditions, 6, 9, 9
zuxml_info, 10