Package 'pack'

May 9, 2026

Type Package

Title Convert Values to/from Raw Vectors

Version 0.1-2

Description
Functions to easily convert data to binary formats other programs/machines can understand.

License GPL-3

LazyLoad yes

Suggests tinytest

NeedsCompilation no

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Repository CRAN

Date/Publication 2025-05-07 12:40:06 UTC

Contents

pack-package *Convert values to/from raw vectors*

Description

pack allows R programmers to easily put their data into binary formats that other programs / machines can understand.

Author(s)

Author: Joshua M. Ulrich Maintainer: Joshua M. Ulrich <josh.m.ulrich@gmail.com>

References

https://perldoc.perl.org/functions/pack

numToRaw *Numeric to Raw vector*

Description

Convert numeric values to a raw vector.

Usage

```
numToRaw(x, nBytes = 1)
```

Arguments

x	A number to be converted (must be > 0)
nBytes	The number of bytes to use

Value

A raw vector containing the bytes representing x.

Author(s)

Joshua M. Ulrich

See Also

rawToNum

Examples

```
# Will be left null padded
(x <- numToRaw(421,4))
rawToNum(x,2)
rawToNum(x,4)
```

---

pack *Pack raw vectors*

Description

Combine values into a raw vector according to the values in `template`.

Usage

```
pack(template, ...)
```

Arguments

`template`	A string, see 'Details'
`...`	Values/objects to be packed into a raw vector

Details

Currently supported `template` values are:
'a' - A null padded string
'A' - A space padded string
'b' - An ascending bit order binary vector, (must be a multiple of 8 long)
'B' - An descending bit order binary vector, (must be a multiple of 8 long)
'C' - An unsigned char (8-bit byte/octet) value
'v' - An unsigned short (16-bit) in "VAX" (little-endian) order
'V' - An unsigned long (32-bit) in "VAX" (little-endian) order
'x' - A null byte

Both 'a' and 'A' may be followed by a repeat value. A repeat value of '*' will cause the remainder of the bytes in `values` to be placed in the last element.

'/' allows packing and unpacking of a sequence of values where the packed structure contains a packed item count followed by the packed items themselves.

If `template` requires more arguments to `pack` than actually given, `pack` pads with null bytes. If `template` requires fewer arguments to `pack` than actually given, extra arguments are ignored.

Value

A raw vector following the elements in `template`.

Author(s)

Joshua M. Ulrich

References

https://perldoc.perl.org/functions/pack

See Also

unpack

Examples

```
(x <- pack('A4 C v A8 V', 'pack', 2, 8, 'sequence', 68098))
(u1 <- unpack('A4 C H*', x))
(u2 <- unpack('v/A V', u1[[3]]))
```

---

rawToNum *Raw to Numeric vector*

Description

Convert raw values to numeric.

Usage

```
rawToNum(x, nBytes = 1)
```

Arguments

x	A raw vector to be converted
nBytes	The number of bytes to use

Value

A numeric value containing the bytes in x.

Author(s)

Joshua M. Ulrich

See Also

numToRaw

Examples

```
# Will be left null padded
(x <- numToRaw(421,4))
rawToNum(x,2)
rawToNum(x,4)
```

---

unpack *Unpack raw vectors*

Description

Break a raw vector into chunks according to the values in `template`.

Usage

```
unpack(template, ...)
```

Arguments

`template`	A string, see 'Details'
`...`	Raw vector(s) to be unpacked

Details

Currently supported `template` values are:
'a' - A null padded string (as of R-2.8.0, strings cannot contain embedded nulls)
'A' - A space padded string
'b' - An ascending bit order binary vector, (must be a multiple of 8 long)
'B' - An descending bit order binary vector, (must be a multiple of 8 long)
'C' - An unsigned char (8-bit byte/octet) value
'v' - An unsigned short (16-bit) in "VAX" (little-endian) order
'V' - An unsigned long (32-bit) in "VAX" (little-endian) order
'f' - A single-precision float
'd' - A double-precision float
'x' - Skip next byte, and push nothing onto return value for it
'H' - A raw byte

Values 'a', 'A', and 'H' may be followed by a repeat value. A repeat value of '*' will cause the remainder of the bytes in `values` to be placed in the last element.

'/' allows packing and unpacking of a sequence of values where the packed structure contains a packed item count followed by the packed items themselves.

If there are more `template` values or if the repeat count of a field or a group is larger than what the remainder ... allows, `unpack` returns `NULL`. If ... is longer than what is described by `template`, the rest is ignored.

Value

A list with an element for each value in `template`.

Note

When unpacking, 'A' strips trailing whitespace and nulls and 'a' returns data verbatim (but with embedded nulls removed, since strings cannot contain embedded nulls as of R-2.8.0).

Author(s)

Joshua M. Ulrich

References

https://perldoc.perl.org/functions/unpack

See Also

pack

Examples

```
(x <- pack('A4 C v A8 V', 'pack', 2, 8, 'sequence', 68098))
(u1 <- unpack('A4 C H*', x))
(u2 <- unpack('v/A V', u1[[3]]))
```

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