Package ‘pack’

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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: Josh Ulrich
Maintainer: Josh Ulrich <josh.m.ulrich@gmail.com>

References

http://perldoc.perl.org/functions/pack.html

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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
nBytes | The number of bytes to use

Value

A raw vector containing the bytes representing x.

Author(s)

Josh Ulrich

See Also

rawToNum
Examples

# Will be left null padded
(x <- numToRaw(421L, 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 (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.
**rawToNum**

**Author(s)**
Josh Ulrich

**References**
http://perldoc.perl.org/functions/pack.html

**See Also**
unpack

**Examples**

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

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**rawToNum**

**Raw to Numeric vector**

**Description**
Convert raw values to numeric.

**Usage**

```r
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)**
Josh Ulrich

**See Also**
numToRaw
unpack

**Unpack raw vectors**

**Description**

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

**Usage**

```r
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 (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` - A null byte
- `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.
unpack

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)
Josh Ulrich

References
http://perldoc.perl.org/functions/unpack.html

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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