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| which {base} | R Documentation |

**Which indices are TRUE?**

**Description**

Give the TRUE indices of a logical object, allowing for array indices.

**Usage**

which(x, arr.ind = FALSE, useNames = TRUE)

arrayInd(ind, .dim, .dimnames = NULL, useNames = FALSE)

**Arguments**

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| x | a [logical](http://127.0.0.1:14695/library/base/help/logical) vector or array. [NA](http://127.0.0.1:14695/library/base/help/NA)s are allowed and omitted (treated as if FALSE). |
| arr.ind | logical; should **arr**ay **ind**ices be returned when x is an array? |
| ind | integer-valued index vector, as resulting from which(x). |
| .dim | [dim](http://127.0.0.1:14695/library/base/help/dim)(.) integer vector |
| .dimnames | optional list of character [dimnames](http://127.0.0.1:14695/library/base/help/dimnames)(.). If useNames is true, to be used for constructing dimnames for arrayInd() (and hence, which(\*, arr.ind=TRUE)). If [names](http://127.0.0.1:14695/library/base/help/names)(.dimnames) is not empty, these are used as column names. .dimnames[[1]] is used as row names. |
| useNames | logical indicating if the value of arrayInd() should have (non-null) dimnames at all. |

**Value**

If arr.ind == FALSE (the default), an integer vector with length equal to sum(x), i.e., to the number of TRUEs in x; Basically, the result is (1:length(x))[x].

If arr.ind == TRUE and x is an [array](http://127.0.0.1:14695/library/base/help/array) (has a [dim](http://127.0.0.1:14695/library/base/help/dim) attribute), the result is arrayInd(which(x), dim(x), dimnames(x)), namely a matrix whose rows each are the indices of one element of x; see Examples below.

**Note**

Unlike most other base **R** functions this does not coerce to x to logical: only arguments with [typeof](http://127.0.0.1:14695/library/base/help/typeof) logical are accepted and others give an error.

**Author(s)**

Werner Stahel and Peter Holzer (ETH Zurich) proposed the arr.ind option.

**See Also**

[Logic](http://127.0.0.1:14695/library/base/help/Logic), [which.min](http://127.0.0.1:14695/library/base/help/which.min) for the index of the minimum or maximum, and [match](http://127.0.0.1:14695/library/base/help/match) for the first index of an element in a vector, i.e., for a scalar a, match(a, x) is equivalent to min(which(x == a)) but much more efficient.

**Examples**

which(LETTERS == "R")

which(ll <- c(TRUE, FALSE, TRUE, NA, FALSE, FALSE, TRUE)) #> 1 3 7

names(ll) <- letters[seq(ll)]

which(ll)

which((1:12)%%2 == 0) # which are even?

which(1:10 > 3, arr.ind = TRUE)

( m <- matrix(1:12, 3, 4) )

div.3 <- m %% 3 == 0

which(div.3)

which(div.3, arr.ind = TRUE)

rownames(m) <- paste("Case", 1:3, sep = "\_")

which(m %% 5 == 0, arr.ind = TRUE)

dim(m) <- c(2, 2, 3); m

which(div.3, arr.ind = FALSE)

which(div.3, arr.ind = TRUE)

vm <- c(m)

dim(vm) <- length(vm) #-- funny thing with length(dim(...)) == 1

which(div.3, arr.ind = TRUE)