

# Package ‘excel.link’

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**Type** Package

**Title** Convenient Data Exchange with Microsoft Excel

**Version** 0.9.15

**Maintainer** Gregory Demin <excel.link.feedback@gmail.com>

**Depends** methods, grDevices, utils

**Suggests** knitr, rmarkdown

**VignetteBuilder** knitr

**OS\_type** windows

**Description** Allows access to data in running instance of Microsoft Excel (e. g. 'xl[a1] = xl[b2]\*3' and so on). Graphics can be transferred with 'xl[a1] = current.graphics()'. Additionally there are function for reading/writing 'Excel' files - 'xl.read.file'/xl.save.file'. They are not fast but able to read/write '\*.xlsb'-files and password-protected files. There is an Excel workbook with examples of calling R from Excel in the 'doc' folder. It tries to keep things as simple as possible - there are no needs in any additional installations besides R, only 'VBA' code in the Excel workbook. Microsoft Excel is required for this package.

**License** GPL (>= 2)

**URL** <https://github.com/gdemin/excel.link>

**BugReports** <https://github.com/gdemin/excel.link/issues>

**LazyLoad** yes

**ByteCompile** TRUE

**NeedsCompilation** yes

**RoxygenNote** 7.3.2

**Author** Gregory Demin [cre],  
Duncan Lang [aut] (To comply CRAN policy includes source code from  
'RDCOMClient' <http://www.omegahat.net/RDCOMClient/>)

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excel.link-package	<i>excel.link: convenient data exchange with Microsoft Excel</i>
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## Description

The excel.link package mainly consists of two rather independent parts: one is for transferring data/graphics to running instance of Excel, another part - work with data table in Excel in similar way as with usual data.frame.

## Transferring data

Package provided family of objects: `xl`, `xlc`, `xlr` and `xlrc`. You don't need to initialize these objects or to do any other preliminary actions. Just after execution `library(excel.link)` you can transfer data to Excel active sheet by simple assignment, for example: `xlrc[a1] = iris`. In this notation 'iris' dataset will be written with column and row names. If you doesn't need column/row names just remove 'r'/'c' letters (`xlrc[a1] = iris` - with column names but without row names). To read Excel data just type something like this: `xl[a1:b5]`. You will get data.frame with values from range a1:a5 without column and row names. It is possible to use named ranges (e.g. `xl[MyNamedRange]`). To transfer graphics use `xl[a1] = current.graphics()`. You can make active binding to Excel range:

```
xl.workbook.add()
xl_iris %<-crc% a1 # bind variable to current region around cell A1 on Excel active sheet
xl_iris = iris # put iris data set
identical(xl_iris$Sepal.Width, iris$Sepal.Width)
xl_iris$test = "Hello, world!" # add new column on Excel sheet
xl_iris = within(xl_iris, {
  new_col = Sepal.Width * Sepal.Length # add new column on Excel sheet
})
```

**Live connection**

For example we put iris dataset to Excel sheet: `xl[a1] = iris`. After that we connect Excel range with R object: `xl_iris = xl.connect.table("a1", row.names = FALSE, col.names = TRUE)`. So we can:

- get data from this Excel range: `xl_iris$Species`
- add new data to this Excel range: `xl_iris$new_column = 42`
- sort this range: `sort(xl_iris, column = "Sepal.Length")`
- and more...

Live connection is faster than active binding to range but is less universal (for example, you can't use `within` statement with it).

**Author(s)**

**Maintainer:** Gregory Demin <[excel.link.feedback@gmail.com](mailto:excel.link.feedback@gmail.com)>

**Authors:**

- Duncan Lang <[duncan@wald.ucdavis.edu](mailto:duncan@wald.ucdavis.edu)> (To comply CRAN policy includes source code from 'RDCOMClient' <http://www.omegahat.net/RDCOMClient/>)

**See Also**

[xl](#), [current.graphics](#), [xl.connect.table](#)

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COMStop

*Functions from RDCOMClient package*

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**Description**

For details about these functions see help for RDCOMClient package by Duncan Temple Lang <[duncan@wald.ucdavis.edu](mailto:duncan@wald.ucdavis.edu)>.

**Usage**

```
COMStop(msg, status, class = "COMError")
```

```
createCOMReference(ref, className)
```

```
DispatchMethods
```

```
.COMInit(status = TRUE)
```

```
COMCreate(name, ..., existing = TRUE)
```

```
getCOMInstance(guid, force = TRUE, silent = FALSE)
```

```
getCLSID(appName)

## S4 replacement method for signature 'COMIDispatch,ANY'
x$name <- value

## S4 method for signature 'COMIDispatch'
x$name

## S4 method for signature 'COMIDispatch,numeric'
x[[i, j, ...]]

## S4 method for signature 'COMIDispatch,ANY'
x[[i, j, ...]]

## S4 replacement method for signature 'COMIDispatch,character,missing'
x[[i, j, ...]] <- value

## S4 replacement method for signature 'COMIDispatch,numeric,ANY'
x[[i, j, ...]] <- value

.COM(
  obj,
  name,
  ...,
  .dispatch = as.integer(3),
  .return = TRUE,
  .ids = numeric(0),
  .suppliedArgs
)

asCOMArray(obj)

isValidCOMObject(obj)

COMList(obj, class = "COMList")

## S4 method for signature 'COMList'
length(x)

## S4 method for signature 'COMList,numeric'
x[[i, j, ...]]

## S4 replacement method for signature 'COMList,numeric,ANY'
x[[i, j, ...]] <- value

## S4 method for signature 'COMList'
length(x)
```

```
## S4 method for signature 'COMList'
lapply(X, FUN, ...)

## S4 method for signature 'COMList'
sapply(X, FUN, ..., simplify = TRUE, USE.NAMES = TRUE)

## S4 method for signature 'COMIDispatch'
lapply(X, FUN, ...)

## S4 method for signature 'COMIDispatch'
sapply(X, FUN, ..., simplify = TRUE, USE.NAMES = TRUE)

getItemClassName(x)

## S4 method for signature 'COMTypedList'
getItemClassName(x)

## S4 method for signature 'COMTypedList,numeric'
x[[i, j, ...]]

## S4 method for signature 'COMTypedParameterizedNamedList'
names(x)

## S4 method for signature 'COMTypedList,character'
x[[i, j, ...]]

## S4 method for signature 'COMTypedNamedList'
getItemClassName(x)

## S4 method for signature 'COMTypedNamedList'
names(x)

## S4 method for signature 'CompiledCOMCoClass'
getItemClassName(x)

## S4 method for signature 'CompiledCOMCoClass,character'
x[[i, j, ...]]

## S4 replacement method for signature 'CompiledCOMCoClass,character,ANY'
x[[i, j, ...]] <- value

## S4 method for signature 'CompiledCOMCoClass'
x$name

## S4 replacement method for signature 'CompiledCOMCoClass,character'
x$name <- value

COMNames(x)
```

```
## S4 method for signature 'CompiledCOMIDispatch'
names(x)

## S4 method for signature 'CompiledCOMIDispatch'
x$name

## S4 method for signature 'CompiledCOMIDispatch,character'
x[[i, j, ...]]

## S4 method for signature 'CompiledCOMIDispatch,numeric'
x[[i, j, ...]]

## S4 replacement method for signature 'CompiledCOMIDispatch,character'
x$name <- value

## S4 replacement method for signature 'CompiledCOMIDispatch,character,ANY'
x[[i, j, ...]] <- value

## S4 method for signature 'COMList,numeric,missing'
x[i, j, ..., drop = TRUE]

## S4 method for signature 'COMTypedNamedList,numeric,missing'
x[i, j, ..., drop = TRUE]

## S4 method for signature 'COMTypedNamedList,character,missing'
x[i, j, ..., drop = TRUE]

## S4 method for signature 'COMTypedNamedList,character'
x[[i, j, ..., exact = NA]]

## S4 method for signature 'EnumValue'
show(object)

EnumValue(id, value, obj = new("EnumValue"))

## S4 method for signature 'character,numeric,EnumValue'
EnumValue(id, value, obj = new("EnumValue"))

## S4 method for signature 'character,EnumValue,ANY'
EnumValue(id, value, obj = new("EnumValue"))

## S4 method for signature 'numeric,EnumValue,ANY'
EnumValue(id, value, obj = new("EnumValue"))

## S4 method for signature 'character,missing,EnumValue'
EnumValue(id, value, obj = new("EnumValue"))
```

```

## S4 method for signature 'numeric,missing,EnumValue'
EnumValue(id, value, obj = new("EnumValue"))

createTypeVarName(className, var, quote = TRUE)

## S4 method for signature 'COMIDispatch'
createTypeVarName(className, var, quote = TRUE)

## S4 method for signature 'CompiledCOMCoClass'
createTypeVarName(className, var, quote = TRUE)

## S4 method for signature 'character'
createTypeVarName(className, var, quote = TRUE)

getCOMElements(type, env = NA, namesOnly = FALSE)

```

### Arguments

msg	See RDCOMClient documentation.
status	See RDCOMClient documentation.
class	See RDCOMClient documentation.
ref	See RDCOMClient documentation.
className	See RDCOMClient documentation.
name	See RDCOMClient documentation.
...	See RDCOMClient documentation.
existing	See RDCOMClient documentation.
guid	See RDCOMClient documentation.
force	See RDCOMClient documentation.
silent	See RDCOMClient documentation.
appName	See RDCOMClient documentation.
x	See RDCOMClient documentation.
value	See RDCOMClient documentation.
i	See RDCOMClient documentation.
j	See RDCOMClient documentation.
obj	See RDCOMClient documentation.
.dispatch	See RDCOMClient documentation.
.return	See RDCOMClient documentation.
.ids	See RDCOMClient documentation.
.suppliedArgs	See RDCOMClient documentation.
X	See RDCOMClient documentation.
FUN	See RDCOMClient documentation.
simplify	See RDCOMClient documentation.

USE.NAMES	See RDCOMClient documentation.
drop	See RDCOMClient documentation.
exact	See RDCOMClient documentation.
object	See RDCOMClient documentation.
id	See RDCOMClient documentation.
var	See RDCOMClient documentation.
quote	See RDCOMClient documentation.
type	See RDCOMClient documentation.
env	See RDCOMClient documentation.
namesOnly	See RDCOMClient documentation.

**Format**

An object of class integer of length 3.

**Author(s)**

Duncan Temple Lang <duncan@wald.ucdavis.edu>

---

current.graphics      *Auxiliary function for export graphics to Microsoft Excel*

---

**Description**

Auxiliary function for export graphics to Microsoft Excel

**Usage**

```
current.graphics(
  type = c("png", "jpeg", "bmp", "tiff"),
  filename = NULL,
  picname = NULL,
  ...
)
```

**Arguments**

type	file type. Ignored if argument 'filename' provided.
filename	character. filename (or full path) of file with graphics.
picname	character. Picture name in Excel.
...	arguments for internally used <a href="#">dev.copy</a> function

## Details

If argument type provided this function will save graphics from windows plotting device to temporary file and return path to this file. Argument filename is intended to transfer plots to Excel from file-based graphics devices (see Examples) or just insert into Excel file with graphics. If argument filename is provided argument type will be ignored and returned value is path to file filename with class attribute 'current.graphics'. So it could be used with expressions such `xl[a1] = current.graphics(filename="plot.png")`. If picname is provided then picture will be inserted in Excel with this name. If picture picname already exists in Excel it will be deleted. This argument is useful when we need to change old picture in Excel instead of adding new picture. picname will be automatically prepended by "\_" to avoid conflicts with Excel range names.

## Value

Path to file with saved graphics with class attribute 'current.graphics'. If used with argument type than result has attribute `temp.file = TRUE`.

## Examples

```
## Not run:
xl.workbook.add()
plot(sin)
xl[a1] = current.graphics()
plot(cos)
cos.plot = current.graphics()
xl.sheet.add()
xl[a1] = list("Cosine plotting",cos.plot,"End of cosine plotting")

# the same thing without graphic windows
png("1.png")
plot(sin)
dev.off()
sin.plot = current.graphics(filename = "1.png")
png("2.png")
plot(cos)
dev.off()
cos.plot = current.graphics(filename = "2.png")
output = list("Cosine plotting",cos.plot,"Sine plotting",sin.plot)
xl.workbook.add()
xl[a1] = output

## End(Not run)
```

## Description

xl, xlc, xlr, xlrc objects are already defined in the package. It doesn't need to create or init them. Just after attaching package one can write something like this: `xl[a1] = "Hello, world!"` and this text should appear in A1 cell on active sheet of active Excel workbook. `xl(*)` family of functions creates new worksheet for output. You can provide sheet name and position via `xl.sheet.name/before`.

## Usage

```
## S3 method for class 'xl'
x[str.rng, drop = !(has.rownames(x) | has.colnames(x)), na = "", ...]

## S3 method for class 'xl'
x[[str.rng, drop = !(has.rownames(x) | has.colnames(x)), na = "", ...]]

## S3 method for class 'xl'
x$str.rng

## S3 replacement method for class 'xl'
x[[str.rng, na = "", ...]] <- value

## S3 replacement method for class 'xl'
x$str.rng <- value

## S3 replacement method for class 'xl'
x[str.rng, na = "", ...] <- value

## S3 replacement method for class 'xl'n'
x[[str.rng, na = "", xl.sheet.name = NULL, before = NULL, ...]] <- value

## S3 replacement method for class 'xl'n'
x$str.rng <- value

## S3 replacement method for class 'xl'n'
x[str.rng, na = "", xl.sheet.name = NULL, before = NULL, ...] <- value

xl.selection(drop = TRUE, na = "", row.names = FALSE, col.names = FALSE, ...)
```

## Arguments

x	One of xl, xlc, xlr, xlrc objects. xl - read/write with/without column and row names, "r" - with rownames, "c" - with colnames
str.rng	character Excel range. For single bracket operations it can be without quotes in almost all cases.
drop	logical. If TRUE the result is coerced to the lowest possible dimension. By default dimensions will be dropped if there are no columns and rows names.
na	character. NA representation in Excel. By default it is empty string.

...	additional parameters. Not yet used.
value	suitable replacement value. It will be recycled to fill excel range only if it is object of length 1. In other cases size of excel range is ignored - all data will be placed in Excel sheet starting from top-left cell of submitted range.
xl.sheet.name	character. sheet name in active workbook (for xl(*)n).
before	character/numeric. sheet name or sheet number in active workbook before which new sheet will be added (for xl(*)n).
row.names	logical value indicating whether the Excel range contains the row names as its first column.
col.names	logical value indicating whether the Excel range contains the column names as its first row.

### Details

xl object represents Microsoft Excel application. For convenient interactive usage arguments can be given without quotes in most cases (e. g. `xl[a1] = 5` or `xl[u2:u85] = "Hi"` or `xl[MyNamedRange] = 42`, but `xl["Sheet1!A1"] = 42`). When it used in your own functions or you need to use variable as argument it is recommended apply double brackets notation: `xl[["a1"]] = 5` or `xl[["u2:u85"]] = "Hi"` or `xl[["MyNamedRange"]] = 42`. Difference between xl, xlc, xlrc and xlr is xl ignore row and column names, xlc suppose read and write to Excel with column names, xlrc - with column and row names and so on. There is argument drop which is TRUE by default for xl and FALSE by default for other options. `xl.selection` returns data.frame with data from current selection in Excel. All these functions never coerce characters to factors

### Value

Returns appropriate dataset from Excel.

### See Also

[cr](#), [xl.current.region](#),

### Examples

```
## Not run:
data(iris)
rownames(iris) = as.character(rownames(iris))
iris$Species = as.character(iris$Species)
xl.workbook.add()
xlrc$a1 = iris
xl.iris = xl.current.region("a1", row.names=TRUE, col.names=TRUE)
identical(xl.iris, iris)

xl.sheet.add("Datasets examples")
data.sets = list("Iris dataset", iris, "Cars dataset", cars, "Titanic dataset", as.data.frame(Titanic))
xlrc[a1] = data.sets

## End(Not run)
```

---

xl.bind.range	<i>Active bindings to Excel ranges</i>
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---

### Description

xl.bind.range and xl.bind.current.region create sym in environment env so that getting the value of sym return bound Excel range, and assigning to sym will write the value to be assigned to Excel range. In case of xl.bind.range range will be updated after each assignment accordingly to the size of the assigned value. xl.bind.current.region always returns data from current region (Ctrl+Shift+\* in Excel) of bound range. %=xl% etc are shortcuts for xl.bind.range and xl.bind.current.region. "r" means with row names, "c" means with column names. Range in most cases can be provided without quotes: a1 %=xl% a1:b100. Functions with '=' and with '<' in the names do the same things - they are just for those who prefer '=' assignment and for those who prefer '<' assignment. Assignment and reading may be slow because these functions always read/write entire dataset.

### Usage

```
xl.bind.range(
  sym,
  str.range,
  drop = TRUE,
  na = "",
  row.names = FALSE,
  col.names = FALSE,
  env = parent.frame()
)
```

```
xl.bind.current.region(
  sym,
  str.range,
  drop = TRUE,
  na = "",
  row.names = FALSE,
  col.names = FALSE,
  env = parent.frame()
)
```

sym %=xl% value

sym %=xlr% value

sym %=xlc% value

sym %=xlrc% value

sym %=cr% value

```

sym %=crr% value
sym %=crc% value
sym %=crrc% value
sym %<xl-% value
sym %<xlr-% value
sym %<xlc-% value
sym %<xlrc-% value
sym %<cr-% value
sym %<crr-% value
sym %<crc-% value
sym %<crrc-% value
xl.binding.address(sym)

```

### Arguments

sym	character/active binding.
str.range	character Excel range.
drop	logical. If TRUE the result is coerced to the lowest possible dimension. By default dimensions will be dropped if there are no columns and rows names.
na	character. NA representation in Excel. By default it is empty string.
row.names	logical value indicating whether the Excel range contains the row names as its first column.
col.names	logical value indicating whether the Excel range contains the column names as its first row.
env	an environment.
value	character Excel range address. It can be without quotes in many cases.

### Value

xl.binding.address returns list with three components about bound Excel range: address, rows - number of rows, columns - number of columns. All other functions don't return anything but create active binding to Excel range in the environment.

### Author(s)

Idea by Stefan Fritsch (<https://github.com/gdemin/excel.link/issues/1>)

**See Also**

[xl](#), [xlr](#), [xlc](#), [xlrc](#)

**Examples**

```
## Not run:
xl.workbook.add()
range_a1 %=xl% a1 # binding range_a1 to cell A1 on active sheet
range_a1 # should be NA
range_a1 = 42 # value in Excel should be changed
identical(range_a1, 42)
cr_a1 %=cr% a1 # binding cr_a1 to current region around cell A1 on active sheet
identical(cr_a1, range_a1)
# difference between 'cr' and 'xl':
xl[a2] = 43
range_a1 # 42
xl.binding.address(range_a1)
xl.binding.address(cr_a1)
cr_a1 # identical to 42:43
# make cr and xl identical:
range_a1 = 42:43
identical(cr_a1, range_a1)

xl_iris %=crc% a1 # bind current region A1 on active sheet with column names
xl_iris = iris # put iris dataset to Excel sheet
identical(xl_iris$Sepal.Width, iris$Sepal.Width) # should be TRUE

xl_iris$new_col = xl_iris$Sepal.Width*xl_iris$Sepal.Length # add new column on Excel sheet

## End(Not run)
```

---

xl.connect.table

*Live connection with data on Microsoft Excel sheet*

---

**Description**

xl.connect.table returns object that can be operated as usual data.frame object and this operations (e. g. subsetting, assignment) will be immediately reflected on connected Excel range. See examples. Connected range is 'current region', e. g. selection which can be obtained by pressing Ctrl+Shift+\* when selected str.rng (or top-left cell of this range is active).

**Usage**

```
xl.connect.table(str.rng = "A1", row.names = TRUE, col.names = TRUE, na = "")

## S3 method for class 'excel.range'
sort(x, decreasing = FALSE, column, ...)
```

**Arguments**

str.rng	string which represents Excel range
row.names	a logical value indicating whether the Excel range contains row names as its first column
col.names	a logical value indicating whether the Excel range contains column names as its first row
na	character. NA representation in Excel. By default it is empty string
x	object of class excel.range
decreasing	logical. Should the sort be increasing or decreasing?
column	numeric or character. Column by which we will sort. There is special value - 'rownames'. In this case 'x' will be sorted by row names if it has it.
...	arguments to be passed to or from methods or (for the default methods and objects without a class)

**Details**

Subsetting. Indices in subsetting operations are numeric/character/logical vectors or empty (missing). Numeric values are coerced to integer as by 'as.integer' (and hence truncated towards zero). Character vectors will be matched to the 'colnames' of the object (or Excel column names if has.colnames = FALSE). For extraction form if column name doesn't exist error will be generated. For replacement form new column will be created. If indices are logical vectors they indicate elements/slices to select. Such vectors are recycled if necessary to match the corresponding extent. Indices can also be negative integers, indicating elements/slices to leave out of the selection.

**Value**

- xl.connect.table returns object of excel.range class which represent data on Excel sheet. This object can be treated similar to data.frame. So you can assign values, delete columns/rows and so on. For more information see examples.
- sort sorts Excel range by single column (multiple columns currently not supported) and invisibly return NULL.

**Examples**

```
## Not run:
### session example

library(excel.link)
xl.workbook.add()
xl.sheet.add("Iris dataset", before = 1)
xlrc[a1] = iris
xl.iris = xl.connect.table("a1", row.names = TRUE, col.names = TRUE)
dists = dist(xl.iris[, 1:4])
clusters = hclust(dists, method = "ward.D")
xl.iris$clusters = cutree(clusters, 3)
plot(clusters)
```

```

pl.clus = current.graphics()
cross = table(xl.iris$Species, xl.iris$clusters)
plot(cross)
pl.cross = current.graphics()
xl.sheet.add("Results", before = 2)
xlrc$a1 = list("Crosstabulation", cross,pl.cross, "Dendrogram", pl.clus)

### completely senseless actions
### to demonstrate various operations and
### compare them with operations on usual data.frame

# preliminary operations
data(iris)
rownames(iris) = as.character(rownames(iris))
iris$Species = as.character(iris$Species)
xl.workbook.add()

# drop dataset to Excel and connect it
xlrc[a1] = iris
xl.iris = xl.connect.table("a1", row.names = TRUE, col.names = TRUE)
identical(xl.iris[], iris)

# dim/colnames/rownames
identical(dim(xl.iris),dim(iris))
identical(colnames(xl.iris),colnames(iris))
identical(rownames(xl.iris),rownames(iris))

# sort datasets
iris = iris[order(iris$Sepal.Length), ]
sort(xl.iris, column = "Sepal.Length")
identical(xl.iris[], iris)

# sort datasets by rownames
sort(xl.iris, column = "rownames")
iris = iris[order(rownames(iris)), ]
identical(xl.iris[], iris)

# different kinds of subsetting
identical(xl.iris[,1:3], iris[,1:3])
identical(xl.iris[,3], iris[,3])
identical(xl.iris[26,1:3], iris[26,1:3])
identical(xl.iris[-26,1:3], iris[-26,1:3])
identical(xl.iris[50,], iris[50,])
identical(xl.iris$Species, iris$Species)
identical(xl.iris[, 'Species', drop = FALSE], iris[, 'Species', drop = FALSE])
identical(xl.iris[c(TRUE,FALSE), 'Sepal.Length'],
          iris[c(TRUE,FALSE), 'Sepal.Length'])

# column creation and assignment
xl.iris[, 'group'] = xl.iris$Sepal.Length > mean(xl.iris$Sepal.Length)
iris[, 'group'] = iris$Sepal.Length > mean(iris$Sepal.Length)
identical(xl.iris[], iris)

```

```

# value recycling
xl.iris$temp = c('aa','bb')
iris$temp = c('aa','bb')
identical(xl.iris[], iris)

# delete column
xl.iris["temp"] = NULL
iris["temp"] = NULL
identical(xl.iris[], iris)

## End(Not run)

```

---

xl.current.region      *Read/write from/to Excel current region.*

---

### Description

Current region is a region that will be selected by pressing Ctrl+Shift+\* in Excel. The current region is a range bounded by any combination of blank rows and blank columns. cr, crc, crr, crcc objects are already defined in the package. It doesn't need to create or init them.

### Usage

```

xl.current.region(
  str.rng,
  drop = TRUE,
  na = "",
  row.names = FALSE,
  col.names = FALSE,
  ...
)

## S3 method for class 'cr'
x[[str.rng, drop = !(has.rownames(x) | has.colnames(x)), na = "", ...]]

## S3 replacement method for class 'cr'
x[[str.rng, na = "", ...]] <- value

```

### Arguments

str.rng	character Excel range. For single bracket operations it can be without quotes in almost all cases.
drop	logical. If TRUE the result is coerced to the lowest possible dimension. By default dimensions will be dropped if there are no columns and rows names.
na	character. NA representation in Excel. By default it is empty string.
row.names	logical value indicating whether the Excel range contains the row names as its first column.

<code>col.names</code>	logical value indicating whether the Excel range contains the column names as its first row.
<code>...</code>	additional parameters. Not yet used.
<code>x</code>	One of <code>cr</code> , <code>crc</code> , <code>crr</code> , <code>crrc</code> objects. <code>cr</code> - read/write with/without column and row names, <code>r</code> - with rownames, <code>c</code> - with colnames
<code>value</code>	suitable replacement value. All data will be placed in Excel sheet starting from top-left cell of current region. Current region will be cleared before writing.

## Details

`cr` object represents Microsoft Excel application. For convenient interactive usage arguments can be given without quotes in most cases (e. g. `cr[a1] = 5` or `cr[u2:u85] = "Hi"` or `cr[MyNamedRange] = 42`, but `cr["Sheet1!A1"] = 42`). When it used in your own functions or you need to use variable as argument it is recommended apply double brackets notation: `cr[["a1"]] = 5` or `cr[["u2:u85"]] = "Hi"` or `cr[["MyNamedRange"]] = 42`. Difference between `cr`, `crc`, `crrc` and `crr` is `cr` ignore row and column names, `crc` suppose read and write to Excel with column names, `crrc` - with column and row names and so on. There is argument `drop` which is `TRUE` by default for `cr` and `FALSE` by default for other options. All these functions never coerce characters to factors

## Value

Returns appropriate dataset from Excel.

## See Also

[xl](#)

## Examples

```
## Not run:
data(iris)
data(mtcars)
xl.workbook.add()
xlc$a1 = iris
identical(crc[a1],xlc[a1:e151]) # should be TRUE
identical(crc$a1,xlc[a1:e151]) # should be TRUE
identical(crc$a1,xlc[a1]) # should be FALSE

# current region will be cleared before writing - no parts of iris dataset
crrc$a1 = mtcars
identical(crrc$a1,xlrc[a1:l33]) # should be TRUE

## End(Not run)
```

---

xl.get.excel	Returns reference to Excel application.
--------------	---

---

**Description**

Returns reference to Microsoft Excel application. If there is no running instance exists it will create a new instance.

**Usage**

```
xl.get.excel()
```

**Value**

object of class 'COMIDispatch' (as returned by COMCreate from RDCOMClient package).

**Examples**

```
## Not run:  
xls = xl.get.excel()  
  
## End(Not run)
```

---

xl.index2address	Converts Excel address to indexes and vice versa.
------------------	---

---

**Description**

Converts Excel address to indexes and vice versa.

**Usage**

```
xl.index2address(top, left, bottom = NULL, right = NULL)  
  
xl.address2index(str.range)
```

**Arguments**

top	integer top index of top-left cell
left	integer left index of top-left cell
bottom	integer bottom index of bottom-right cell
right	integer right index of bottom-right cell
str.range	character Excel range address

**Value**

xl.index2address returns character address (e. g. A1:B150), xl.address2index returns vector with four components: top, left, bottom, right.

**Examples**

```
xl.address2index("A1:D150")
xl.index2address(top=1, left=1)

## Not run:
a1 %=xl% a1
a1 = iris
addr = xl.binding.address(a1)$address
xl.address2index(addr)

## End(Not run)
```

---

xl.property

*Excel constants and helper function for setting Excel range properties.*

---

**Description**

xl.constants is a list with (surprise!) Excel named constants.

**Usage**

```
xl.property(...)
```

```
xl.constants
```

**Arguments**

... names of arguments are properties as in Excel VBA, values are properties values.

**Format**

An object of class list of length 2024.

**Value**

list of class xl.property.

**Examples**

```
## Not run:
# create random matrix
rand_mat = matrix(runif(16), ncol = 4)

# put it on the new worksheet
xln[a1] = rand_mat

# set bold font, format numbers as percent and align it
cr[a1] = xl.property(Font.Bold = TRUE,
                    NumberFormat = "0.00%",
                    HorizontalAlignment = xl.constants$xlCenter
                    )

## End(Not run)
```

---

xl.read.file

*Functions for saving and reading data to/from Excel file.*

---

**Description**

Functions for saving and reading data to/from Excel file.

**Usage**

```
xl.read.file(
  filename,
  header = TRUE,
  row.names = NULL,
  col.names = NULL,
  xl.sheet = NULL,
  top.left.cell = "A1",
  na = "",
  password = NULL,
  write.res.password = NULL,
  excel.visible = FALSE
)

xl.save.file(
  r.obj,
  filename,
  row.names = TRUE,
  col.names = TRUE,
  xl.sheet = NULL,
  top.left.cell = "A1",
  na = "",
  password = NULL,
  write.res.password = NULL,
```

```

    excel.visible = FALSE,
    file.format = xl.constants$xlOpenXMLWorkbook
  )

```

### Arguments

filename	a character
header	a logical value indicating whether the file contains the names of the variables as its first line. If TRUE and top-left corner is empty cell, first column is considered as row names. Ignored if row.names or col.names is not NULL.
row.names	a logical value indicating whether the row names of r.obj are to be read/saved along with r.obj
col.names	a logical value indicating whether the column names of r.obj are to be read/saved along with r.obj
xl.sheet	character. Name of Excel sheet where data is located/will be saved. By default it is NULL and data will be read/saved from/to active sheet.
top.left.cell	character. Top-left corner of data in Excel sheet. By default is 'A1'.
na	character. NA representation in Excel. By default it is empty string.
password	character. Password for password-protected workbook.
write.res.password	character. Second password for editing workbook.
excel.visible	a logical value indicating will Excel visible during this operations. FALSE by default.
r.obj	R object.
file.format	integer. Excel file format. By default it is xl.constants\$xlOpenXMLWorkbook. You can use xl.constants\$xlOpenXMLWorkbookMacroEnabled for workbooks with macros (*.xlsm) or xl.constants\$xlExcel12 for binary workbook (.xlsb).

### Details

xl.read.file reads only rectangular data set. It is highly recommended to have all column names and ids in data set. Orphaned rows/columns located apart from the main data will be ignored. xl.save.file can save all objects for which xl.write method exists - see examples.

### Value

xl.read.file always returns data.frame. xl.save.file invisibly returns NULL.

### See Also

[xl.write](#), [xl.workbook.save](#), [xl.workbook.open](#), [current.graphics](#)

## Examples

```
## Not run:
data(iris)
xl.save.file(iris,"iris.xlsx")
xl.iris = xl.read.file("iris.xlsx")
all(iris == xl.iris) # Shoud be TRUE
unlink("iris.xlsx")

# Save to file list with different data types
dists = dist(iris[,1:4])
clusters = hclust(dists,method="ward.D")
iris$clusters = cutree(clusters,3)
png("1.png")
plot(clusters)
dev.off()
pl.clus = current.graphics(filename="1.png")
cross = table(iris$Species,iris$clusters)
png("2.png")
plot(cross)
dev.off()
pl.cross = current.graphics(filename="2.png")
output = list("Iris",pl.clus,cross,pl.cross,"Data:", "",iris)
xl.save.file(output,"output.xls")
xl.workbook.open("output.xls")
# xl.workbook.close() # close workbook
# unlink("output.xls") # delete file

# password-protected file
data(iris)
xl.save.file(iris,"iris.xlsx", password = "pass")
xl.iris = xl.read.file("iris.xlsx", password = "pass")
all(iris == xl.iris) # Shoud be TRUE
unlink("iris.xlsx")

## End(Not run)
```

---

xl.sheet.add

*Basic operations with worksheets.*

---

## Description

Basic operations with worksheets.

## Usage

```
xl.sheet.add(xl.sheet.name = NULL, before = NULL)
```

```
xl.sheet.duplicate(before = NULL)
xl.sheet.name(xl.sheet.name = NULL)
xl.sheet.visible(xl.sheet)
xl.sheet.hide(xl.sheet = NULL)
xl.sheet.show(xl.sheet)
xl.sheets()
xl.sheet.activate(xl.sheet)
xl.sheet.delete(xl.sheet = NULL)
```

### Arguments

<code>xl.sheet.name</code>	character. sheet name/new sheet name
<code>before</code>	character/numeric. sheet name or sheet number in active workbook before which new sheet will be added
<code>xl.sheet</code>	character/numeric. sheet name or sheet number in active workbook

### Details

- `xl.sheet.add` adds new sheet with given name and invisibly returns name of this newly added sheet. Added sheet become active. If `xl.sheet.name` is missing default name will be used. If `before` argument is missing, sheet will be added at the last position. If sheet with given name already exists error will be generated.
- `xl.sheet.name` rename active sheet. If its argument is missing then it just return active sheet name.
- `xl.sheet.hide`/`xl.sheet.show` hide and show sheet by its name. `xl.sheet.visible` returns current visibility status of the sheet.
- `xl.sheet.activate` activates sheet with given name/number. If sheet with this name doesn't exist error will be generated.
- `xl.sheet.delete` deletes sheet with given name/number. If name doesn't submitted it delete active sheet.

### Value

- `xl.sheet.add`/`xl.sheet.activate`/`xl.sheet.duplicate` invisibly return name of created/activated/duplicated sheet.
- `xl.sheets` returns vector of sheet names in active workbook.
- `xl.sheet.delete` invisibly returns `NULL`.

### See Also

[xl.workbooks](#)

## Examples

```
## Not run:
xl.workbook.add()
sheets = xl.sheets()
xl.sheet.add("Second")
xl.sheet.add("First", before="Second")
for (sheet in sheets) xl.sheet.delete(sheet) # only 'First' and 'Second' exist in workbook now
xl.sheet.activate("Second") #last sheet activated
xl.sheet.duplicate() # duplicate second sheet
xl.sheet.name() # "Second (2)"
xl.sheet.name("Third") # "Third"

## End(Not run)
```

---

xl.workbook.add      *Basic operations with Excel workbooks*

---

## Description

Basic operations with Excel workbooks

## Usage

```
xl.workbook.add(filename = NULL)

xl.workbook.open(filename, password = NULL, write.res.password = NULL)

xl.workbook.activate(xl.workbook.name)

xl.workbooks(full.names = FALSE)

xl.workbook.save(
  filename,
  password = NULL,
  write.res.password = NULL,
  file.format = xl.constants$xmlOpenXMLWorkbook
)

xl.workbook.close(xl.workbook.name = NULL)
```

## Arguments

filename      character. Excel workbook filename.

password      character. Password for password-protected workbook.

write.res.password      character. Second password for editing workbook.

<code>xl.workbook.name</code>	character. Excel workbook name.
<code>full.names</code>	logical. Should we return full path to the workbook? FALSE, by default.
<code>file.format</code>	integer. Excel file format. By default it is <code>xl.constants\$xlOpenXMLWorkbook</code> . You can use <code>xl.constants\$xlOpenXMLWorkbookMacroEnabled</code> for workbooks with macros (*.xlsm) or <code>xl.constants\$xlExcel12</code> for binary workbook (.xlsb).

### Details

- `xl.workbook.add` adds new workbook and invisibly returns name of this newly created workbook. Added workbook become active. If filename argument is provided then Excel workbook filename will be used as template.
- `xl.workbook.activate` activates workbook with given name. If workbook with this name doesn't exist error will be generated.
- `xl.workbook.save` saves active workbook. If only filename submitted it saves in the working directory. If name of workbook is omitted than new workbook is saved under its default name in the current working directory. It doesn't prompt about overwriting if file already exists.
- `xl.workbook.close` closes workbook with given name. If name isn't submitted it closed active workbook. It doesn't prompt about saving so if you don't save changes before closing all changes will be lost.

### Value

- `xl.workbook.add`/`xl.workbook.open`/`xl.workbook.activate` invisibly return name of created/open/activated workbook.
- `xl.workbooks` returns character vector of open workbooks.
- `xl.workbook.save` invisibly returns path to the saved workbook.
- `xl.workbook.close` invisibly returns NULL.

### See Also

[xl.sheets](#), [xl.read.file](#), [xl.save.file](#)

### Examples

```
## Not run:
## senseless actions
data(iris)
data(cars)
xl.workbook.add()
xlrc[a1] = iris
xl.workbook.save("iris.xlsx")
xl.workbook.add()
xlrc[a1] = cars
xl.workbook.save("cars.xlsx")
xl.workbook.activate("iris")
xl.workbook.close("cars")
```

```

xl.workbook.open("cars.xlsx")
xl.workbooks()
for (wb in xl.workbooks()) xl.workbook.close(wb)
unlink("iris.xlsx")
unlink("cars.xlsx")

# password-protected workbook
data(iris)
xl.workbook.add()
xlrc[a1] = iris
xl.workbook.save("iris.xlsx", password = "my_password")
xl.workbook.close()
xl.workbook.open("iris.xlsx", password = "my_password")
xl.workbook.close()
unlink("iris.xlsx")

## End(Not run)

```

---

xl.write

*Methods for writing data to Excel sheet*


---

### Description

Methods for writing data to Excel sheet

### Usage

```

xl.write(r.obj, xl.rng, na = "", ...)

## S3 method for class 'current.graphics'
xl.write(r.obj, xl.rng, na = "", delete.file = FALSE, ...)

## S3 method for class 'list'
xl.write(r.obj, xl.rng, na = "", ...)

## S3 method for class 'matrix'
xl.write(r.obj, xl.rng, na = "", row.names = TRUE, col.names = TRUE, ...)

## S3 method for class 'data.frame'
xl.write(r.obj, xl.rng, na = "", row.names = TRUE, col.names = TRUE, ...)

## Default S3 method:
xl.write(r.obj, xl.rng, na = "", row.names = TRUE, ...)

```

### Arguments

r.obj	R object
xl.rng	An object of class COMIDispatch (as used in RDCOMClient package) - reference to Excel range

na	character. NA representation in Excel. By default it is empty string
...	arguments for further processing
delete.file	a logical value indicating whether delete file with graphics after insertion in Excel
row.names	a logical value indicating whether the row names/vector names of r.obj should to be written along with r.obj
col.names	a logical value indicating whether the column names of r.obj should to be written along with r.obj

### Details

xl.rng should be COM-reference to Excel range, not string. Method invisibly returns number of columns and rows occupied by r.obj on Excel sheet. It's useful for multiple objects writing to prevent their overlapping. It is more convenient to use xl object. xl.write aimed mostly for programming purposes, not for interactive usage.

### Value

c(rows,columns) Invisibly returns rows and columns number occupied by r.obj on Excel sheet.

### See Also

[xl](#), [xlr](#), [xlc](#), [xlrc](#), [current.graphics](#)

### Examples

```
## Not run:
xls = xl.get.excel()
xl.workbook.add()
rng = xls[["Activsheet"]]$Cells(1,1)
nxt = xl.write(iris,rng,row.names = TRUE,col.names = TRUE)
rng = rng$Offset(nxt[1] + 1,0)
nxt = xl.write(cars,rng,row.names = TRUE,col.names = TRUE)
rng = rng$Offset(nxt[1] + 1,0)
nxt = xl.write(as.data.frame(Titanic),rng,row.names = TRUE,col.names = TRUE)

data(iris)
data(cars)
data(Titanic)
xl.sheet.add()
rng = xls[["Activsheet"]]$Cells(1,1)
data.sets = list("Iris dataset",iris,
  "Cars dataset",cars,
  "Titanic dataset",as.data.frame(Titanic))
xl.write(data.sets,rng,row.names = TRUE,col.names = TRUE)

## End(Not run)
```

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