

# Introduction to the **RKEA** Package

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## Abstract

A short introduction to the **RKEA** package.

## Introduction

The **RKEA** package provides a R interface to KEA<sup>1</sup>, a tool for keyword extraction in texts.

## Loading the Package

Before actually working we need to load the package:

```
> library("RKEA")
```

## Creating a Keyword Extraction Model

KEA needs a keyword extraction model for keyword extraction. You can build your own models by manually indexing the keywords in a small set of texts, and then call `createModel()`.

```
> library("tm")
> data("crude")
> keywords <- list(c("Diamond", "crude oil", "price"),
+                 c("OPEC", "oil", "price"),
+                 c("Texaco", "oil", "price", "decrease"),
+                 c("Marathon Petroleum", "crude", "decrease"),
+                 c("Houston Oil", "revenues", "decrease"),
+                 c("Kuwait", "OPEC", "quota"))
> tmpdir <- tempfile()
> dir.create(tmpdir)
> model <- file.path(tmpdir, "crudeModel")
> createModel(crude[1:6], keywords, model)
```

Please note that we just wrap the functionality of the original KEA program which always uses files for in- and output (and that is the reason you also need to use a directory in R as shown in the above example). We deliberately decided not

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<sup>1</sup><http://www.nzdl.org/Kea/>

to modify the KEA java archive shipped with this R package for compatibility reasons. However this may induce some warnings in R (e.g., because some internal KEA paths might not be available) but nevertheless you should get the full functionality out of it.

## Keyword Extraction

Once you have a KEA model you can extract keywords from texts.

```
> extractKeywords(crude, model)

[[1]]
 [1] "Diamond"           "cut its contract" "cut"
 [4] "reduction"         "contract"         "crude oil"
 [7] "dlrs a barrel"    "prices"           "today"
[10] "crude"

[[2]]
 [1] "OPEC"           "problems"  "production" "analysts"  "Energy"
 [6] "meet"          "OPEC's"   "oil prices" "meeting"   "June"

[[3]]
 [1] "Texaco Canada"           "Texaco"
 [3] "Canada"                 "it lowered the contract price"
 [5] "crude oil"              "crude"
 [7] "price"                  "it"
 [9] "oil"                    "Edmonton/Swann"

[[4]]
 [1] "it reduced the contract price" "reduced"
 [3] "grades of crude"              "grades"
 [5] "crude"                        "price"
 [7] "it"                           "West Texas Intermediate"
 [9] "posted"                       "posted price"

[[5]]
 [1] "future"           "future net"           "reserves"
 [4] "estimates"       "Trust said"          "Trust"
 [7] "study"           "future net revenues" "net"
[10] "revenues"

[[6]]
 [1] "Kuwait"           "OPEC"           "bpd"           "Minister"
 [5] "Sheikh Ali"      "Sheikh"         "Ali"           "members"
 [9] "international"  "quota"

[[7]]
 [1] "says"           "Indonesia"  "economy"  "government"  "report says"
 [6] "report"        "appears"    "measures" "sector"       "investment"
```

[[8]]  
 [1] "higher levels" "riyal" "deposits" "higher"  
 [5] "OPEC" "market" "yesterday's" "said"  
 [9] "yesterday" "quotes"

[[9]]  
 [1] "billion" "budget" "billion riyals"  
 [4] "riyals" "government" "Sheikh Abdul-Aziz"  
 [7] "Abdul-Aziz" "expenditure" "decline"  
 [10] "Sheikh"

[[10]]  
 [1] "Saudi" "accord" "Nazer" "commitment" "OPEC"  
 [6] "OPEC accord" "SPA" "free" "free market" "market"

[[11]]  
 [1] "Saudi" "exports" "January"  
 [4] "bpd" "output" "fell"  
 [7] "average" "Ju'aymah" "Ju'aymah terminals"  
 [10] "February"

[[12]]  
 [1] "official" "oil ministers" "ministers" "Gulf"  
 [5] "Arab" "states" "Emirates" "crude oil"  
 [9] "crude" "oil"

[[13]]  
 [1] "Saudi" "commitment" "OPEC accord"  
 [4] "OPEC" "Nazer" "commitment to last"  
 [7] "OPEC accord to boost" "accord" "oil prices"  
 [10] "kingdom's"

[[14]]  
 [1] "oil minister said" "OPEC"  
 [3] "oil minister" "meeting"  
 [5] "oil prices" "prices"  
 [7] "oil" "pumping above its OPEC"  
 [9] "daily" "pumping"

[[15]]  
 [1] "power" "port" "closed"  
 [4] "lines" "oil" "ship"  
 [7] "nuclear power plant" "nuclear power" "nuclear"  
 [10] "plant"

[[16]]  
 [1] "group" "strategic"  
 [3] "mln barrels" "oil prices on the domestic"  
 [5] "reserve" "present"  
 [7] "U.S" "mln"

```

[9] "barrels"                "prices"

[[17]]
[1] "group"                    "strategic"
[3] "mln barrels"              "oil prices on the domestic"
[5] "reserve"                  "U.S"
[7] "study"                    "present"
[9] "policy"                   "industry"

[[18]]
[1] "Union"                    "Union Oil Co"      "Union Oil"
[4] "Union Oil Co said" "posted"            "posted prices"
[7] "lowered"             "Corp's"           "crude oil"
[10] "dlrs"

[[19]]
[1] "NYMEX"                    "Exchange"
[3] "futures"                  "transaction"
[5] "change"                   "hold a futures position"
[7] "hold a futures"          "futures position"
[9] "position"                 "traders"

[[20]]
[1] "January"
[2] "mln barrels"
[3] "pct"
[4] "mln"
[5] "Yacimientos Petroliferos Fiscales"
[6] "Yacimientos Petroliferos"
[7] "Yacimientos"
[8] "Petroliferos"
[9] "Petroliferos Fiscales"
[10] "Fiscales"

> unlink(tmpdir, recursive = TRUE)

```