

Cran download logs aggregation time summary

A.Birek, M.Kosiński, N.Ryciak, W.Ryciuk

May 12, 2014

CONTENTS

1	Downloading data	3
2	SAS Path	4
2.1	Importing data	4
2.2	Merging files	4
2.3	Summary for each variable	4
2.4	Sorting	6
2.5	Frequency tables	6
2.5.1	r os	6
2.5.2	Packages	6
3	Traditional \mathcal{R} Path	7
3.1	Unmerged \mathcal{R} files Path	7
3.2	Merged \mathcal{R} files Path	7
3.2.1	Names	7
3.2.2	Getting Data	8
4	Rcpp Path	9
A	Preparing report	10
A.1	Data download, unzip, conversion syntax	10
B	SAS Syntax	11



Figure 1: Powered by ! <https://github.com/MarcinKosinski/AlmostBigData>

CHAPTER
ONE

DOWNLOADING DATA

Syntax used for downloading, unzipping and merging data is available in section [A.1](#). More or less downloading looked like this and took about:

```
start <- as.Date("2012-10-01")
today <- as.Date("2014-05-10")
all_days <- seq(start, today, by = "day")
year <- as.POSIXlt(all_days)$year + 1900
urls <- paste0("http://cran-logs.rstudio.com/", year, "/", all_days, ".csv.gz")

destdir <- "D:/bd1/AlmostBigData/cran-logs/"
n <- length(urls)
i = 1
for (i in 1:n) {
  destfile <- stri_paste(destdir, as.character(all_days[i]))
  download.file(urls[i], destfile)
}
```

Unzipping files syntax looked like this and took:

```
lok <- "D:/bd1/AlmostBigData"
gzpath <- character(n)
i <- 1
for (i in 1:n) {
  gzpath[i] <- paste(lok, "/cran-logs", all_days[i], sep = "")
}
install.packages("R.utils")
library(R.utils)
for (i in 1:n) {
  gunzip(gzpath[i], destname = paste(gzpath[i], ".csv"), remove = TRUE)
}
```

Converting CSV files with proper delimiter syntax looked like this and time spent was:

```
for (i in 1:n) {
  write.csv2(read.csv2(paste(gzpath[i], ".csv"), sep = ","), paste(gzpath[i], "_new.csv"))
}
```

Syntax used for importing, merging and summarizing data is available in chapter [B](#).

2.1 Importing data

Importing csv files into SAS syntax looked like this and took: average 0.2 s for each file, that gives **2 min 40 S** (Stoper method.)

```
proc import datafile='D:/bd1/AlmostBigData/cran-logs2012-10-01 _new.csv'
out=CR.cran1 dbms=csv replace;
    delimiter = ',';
    getnames=yes;
    run;

...

proc import datafile='D:/bd1/AlmostBigData/cran-logs2014-05-09 _new.csv'
out=CR.cran586 dbms=csv replace;
    delimiter = ',';
    getnames=yes;
    run;
```

2.2 Merging files

Merging all those files syntax looked like this and time expired was:

```
data Cr.DANE;
set
CR.cran1,
CR.cran2,
....
CR.cran586;
run;
```

Time expired:

```
NOTE: The data set CR.DANE has 41611796 observations and 11 variables.
NOTE: DATA statement used (Total process time):
      real time           1:22.02
      cpu time            11.94 seconds
```

2.3 Summary for each variable

Summaries of each variable syntax looked like this and time expired was:

```
12  proc summary data=Cr.DANE2 print;
13  class package;
14  run;
```

NOTE: There were 41611796 observations read from the data set CR.DANE2.

NOTE: PROCEDURE SUMMARY **used** (Total process time):

real time	29.82 seconds
cpu time	20.06 seconds

```
15
16  proc summary data=Cr.DANE2 print;
17  class version;
18  run;
```

NOTE: There were 41611796 observations read from the data set CR.DANE2.

NOTE: PROCEDURE SUMMARY **used** (Total process time):

real time	31.23 seconds
cpu time	20.18 seconds

```
19
20  proc summary data=Cr.DANE2 print;
21  class r_arch;
22  run;
```

NOTE: There were 41611796 observations read from the data set CR.DANE2.

NOTE: PROCEDURE SUMMARY **used** (Total process time):

real time	30.65 seconds
cpu time	10.12 seconds

```
23
24  proc summary data=Cr.DANE2 print;
25  class r_os;
26  run;
```

NOTE: There were 41611796 observations read from the data set CR.DANE2.

NOTE: PROCEDURE SUMMARY **used** (Total process time):

real time	30.59 seconds
cpu time	12.58 seconds

```
27
28  proc summary data=Cr.DANE2 print;
29  class r_version;
30  run;
```

NOTE: There were 41611796 observations read from the data set CR.DANE2.

NOTE: PROCEDURE SUMMARY **used** (Total process time):

real time	30.56 seconds
cpu time	10.95 seconds

```
31
32  proc summary data=Cr.DANE2 print;
33  class country;
34  run;
```

NOTE: There were 41611796 observations read from the data set CR.DANE2.

NOTE: PROCEDURE SUMMARY **used** (Total process time):

real time	30.07 seconds
-----------	---------------

cpu time	12.48 seconds
----------	---------------

2.4 Sorting

Sort procedure is required that frequency table can be computed. Unfortunately it takes over 3 minutes...

```
1  proc sort data=Cr.Dane out=CR.Dane2;
2  by r_os;
3  run;
```

NOTE: There were 41611796 observations read from the data set CR.DANE.
NOTE: The data set CR.DANE2 has 41611796 observations and 11 variables.
NOTE: PROCEDURE SORT **used** (Total process time):
real time 3:49.71
cpu time 35.39 seconds

2.5 Frequency tables

2.5.1 r os

Frequency tables syntax and the time expired for **r os**:

```
proc freq data=Cr.dane2;
tables r_os;
run;
```

NOTE: Writing HTML Body file: sashtml.htm
NOTE: There were 41611796 observations read from the data set CR.DANE2.
NOTE: PROCEDURE FREQ **used** (Total process time):
real time 32.60 seconds
cpu time 5.46 seconds

2.5.2 Packages

Frequency tables syntax and the time expired for **packages**, grouped by **r os**:

```
proc freq data=Cr.dane2 page;
by r_os;
tables package;
run;
```

NOTE: There were 41611796 observations read from the data set CR.DANE2.
NOTE: PROCEDURE FREQ **used** (Total process time):
real time 53.25 seconds
cpu time 32.46 seconds

TRADITIONAL \mathcal{R} PATH

3.1 Unmerged \mathcal{R} files Path

3.2 Merged \mathcal{R} files Path

Merging all files with R looked like this:

```
start <- as.Date("2012-10-01")
today <- as.Date("2014-05-09")

all_days <- seq(start, today, by = "day")

temp_dir <- "~/BigData"
filenames <- paste0(temp_dir, "/", all_days, "_newf.csv")
for (i in 1:length(filenames)) {
  dane <- read.csv2(filenames[i])
  dane <- dane[c(-1)]

  write.table(dane, file = paste(temp_dir, "/dane.csv", sep = ""), append = TRUE, dec = ",",
    sep = ";", qmethod = "double", col.names = FALSE, row.names = FALSE)
}
```

It took around 25 mins.

3.2.1 Names

Getting all packages names, architectures kinds and operating system names was done in around 15 min using the following code:

```
options(stringsAsFactors = FALSE)
temp_dir <- destdir <- "~/BigData"
fname <- paste(temp_dir, "/dane.csv", sep = "")

nazwy <- vector("character")

skipy <- 0
nrowsy <- 2e+06
nazwy <- character(0)
arch <- character(0)
r_os <- character(0)

ileLinijek <- 0

while (class(try({
  d <- read.csv2(fname, skip = skipy, nrows = nrowsy)
}, silent = TRUE)) != "try-error") {
  nazwy <- union(d[, 7], nazwy)
  arch <- union(d[, 5], arch)
```

```

r_os <- union(d[, 6], r_os)
ileLinijek <- ileLinijek + length(d[, 1])
skipy <- skipy + nrowy
}

nazwy <- na.omit(nazwy)
arch <- na.omit(arch)
r_os <- na.omit(r_os)
n <- length(nazwy)
a <- length(arch)
r <- length(r_os)
a_r <- data.frame(matrix(0, nrow = a, ncol = r))
rownames(a_r) <- arch
names(a_r) <- r_os

pakiety <- data.frame(rep(0, length.out = n), row.names = nazwy)
names(pakiety) <- "Krotnosci"

```

3.2.2 Getting Data

To get required data we used the following code:

```

skipy <- 0
nrowy <- 2e+06
while (class(try({
  d <- read.csv2(fname, skip = skipy, nrow = nrowy)
}, silent = TRUE)) != "try-error") {
  for (j in 1:length(d[, 1])) {
    if (!is.na(d[j, 7]))
      pakiety[(d[j, 7]), ] <- pakiety[(d[j, 7]), ] + 1
  }

  skipy <- skipy + nrowy
}

```

```

skipy <- 0
nrowy <- 2e+06
while (class(try({
  d <- read.csv2(fname, skip = skipy, nrow = nrowy)
}, silent = TRUE)) != "try-error") {
  un <- unique(d[, 10])
  un <- na.omit(un)
  for (i in 1:length(un)) {
    s <- (d[d[, 10] == un[i], ][1, ])
    aa <- s[1, 6]
    rr <- s[1, 5]
    if (!is.na(aa) & !is.na(rr))
      a_r[rr, aa] <- a_r[rr, aa] + 1
  }

  skipy <- skipy + nrowy
}

```

First took around 2 hours, and second .

CHAPTER

FOUR

RCPD PATH

PREPARING REPORT

A.1 Data download, unzipt, conversion syntax

```
start <- as.Date("2012-10-01")
today <- as.Date("2014-05-10")
all_days <- seq(start, today, by = "day")
year <- as.POSIXlt(all_days)$year + 1900
urls <- paste0("http://cran-logs.rstudio.com/", year, "/", all_days, ".csv.gz")

destdir <- "D:/bd1/AlmostBigData/cran-logs/"
n <- length(urls)
i = 1
for (i in 1:n) {
  destfile <- stri_paste(destdir, as.character(all_days[i]))
  download.file(urls[i], destfile)
}

lok <- "D:/bd1/AlmostBigData"
gzpath <- character(n)
i <- 1
for (i in 1:n) {
  gzpath[i] <- paste(lok, "/cran-logs", all_days[i], sep = "")
}
install.packages("R.utils")
library(R.utils)
for (i in 1:n) {
  gunzip(gzpath[i], destname = paste(gzpath[i], ".csv"), remove = TRUE)
}

for (i in 1:n) {
  write.csv2(read.csv2(paste(gzpath[i], ".csv"), sep = ","), paste(gzpath[i], "_new.csv"))
}
```

SAS SYNTAX

```
proc import datafile='D:/bd1/AlmostBigData/cran-logs2012-10-01 _new.csv'
out=CR.cran1 dbms=csv replace;
    delimiter = ';';
    getnames=yes;
    run;

...

proc import datafile='D:/bd1/AlmostBigData/cran-logs2014-05-09 _new.csv'
out=CR.cran586 dbms=csv replace;
    delimiter = ';';
    getnames=yes;
    run;

data Cr.DANE;
set
CR.cran1,
CR.cran2,
....
CR.cran586;
run;

proc summary data=Cr.DANE print;
class package;
run;

proc summary data=Cr.DANE print;
class version;
run;

proc summary data=Cr.DANE print;
class r_arch;
run;

proc summary data=Cr.DANE print;
class r_os;
run;

proc summary data=Cr.DANE print;
class r_version;
run;

proc summary data=Cr.DANE print;
class country;
run;
```

```
proc sort data=Cr.Dane out=CR.Dane2;  
by r_os;  
run;
```

```
proc freq data=Cr.dane2 page;  
tables r_os;  
run;
```

```
proc freq data=Cr.dane2 page;  
by r_os;  
tables package;  
run;
```