# R Commander for Survival Analysis

## Install Survival Package

To do survival analysis using R Commander, first you have to install **RcmdrPlugin.survival** package. The process is similar to installing R Commander. To do this, just like installing R Commander, in R Console click **Packages** select **Install package(s)…**, you will be asked to choose CRAN mirror site.  I would choose a site that is close to my current location. And then, select **RcmdrPlugin.survival**. The package will be installed. To run it, you can first run **R Commander** and then load the **RcmdrPlugin.survival** package.

## Run Survival Function and Make Survival Curves

Perform the steps in the following figure, and choose the variables for analysis. You can try importing the data in http://people.ysu.edu/~gchang/stat/SurvivalData/VA%20Lung%20Cancer.sav , try the analysis on lung cancer. Be sure to make the treatment variable, "trt", a Factor variable in order to use to in the analysis. You can then choose **Estimate survival function** or **Compare survival functions** to perform the analysis for comparing survival functions. You can also try selecting **Fit models** and **Cox regression model** to build regression model, find significant factors, and get the relative risk statistics.
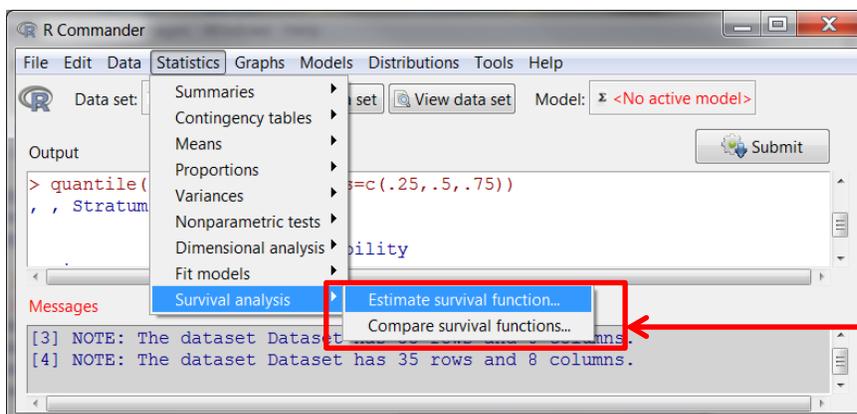


Selecting **Estimate survival function** can get survival curves. Selecting **Compare survival functions** can get the Log Rank test result.

## Cox-Regression Model

Enter name for model: CoxModel.2
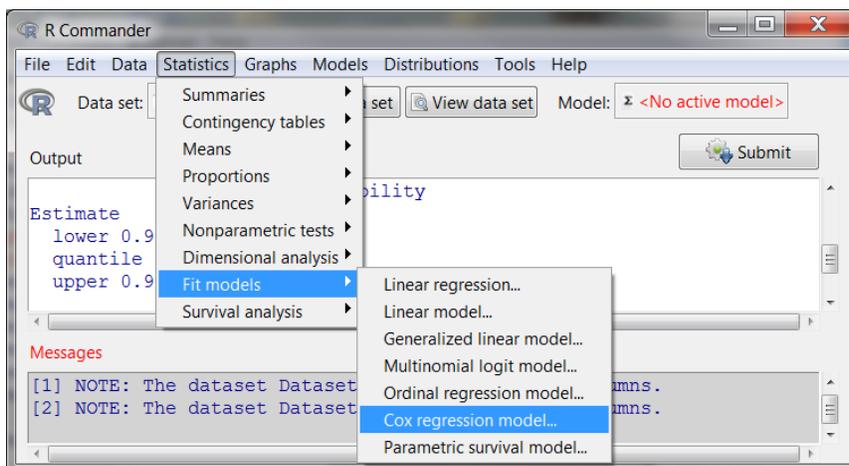
**Time or start/end times**
(select one or two)

- perfstat
- priorthr
- status
- **time** *(selected)*

**Event indicator**
(select one)

- perfstat
- priorthr
- **status** *(selected)*
- time

**Strata**
(select zero or more)

- trt

**Clusters**
(optional)

- trt

**Method for Ties**
- ◉ Efron
- ○ Breslow
- ○ Exact

**Robust Standard Errors**
- ◉ Default
- ○ Yes
- ○ No

**Variables (double-click to formula)**

- age
- celltype
- modiag
- perfstat

`+` `*` `:` `/` `%in%` `-` `^` `(` `)`

~ `age + perfstat + trt`

**Subset expression**

`<all valid cases>`

[ Help ]  [ Reset ]  [ OK ]  [ Cancel ]
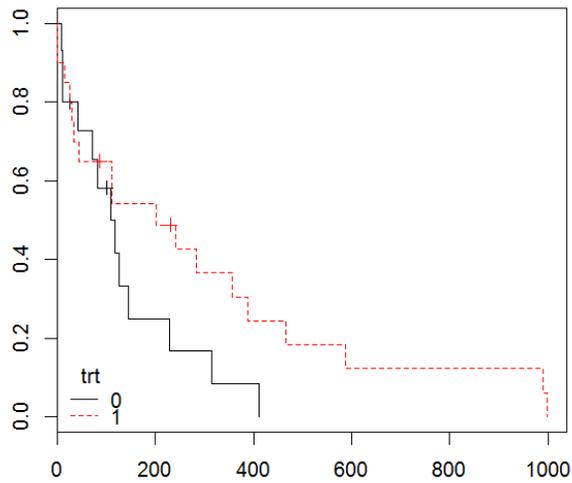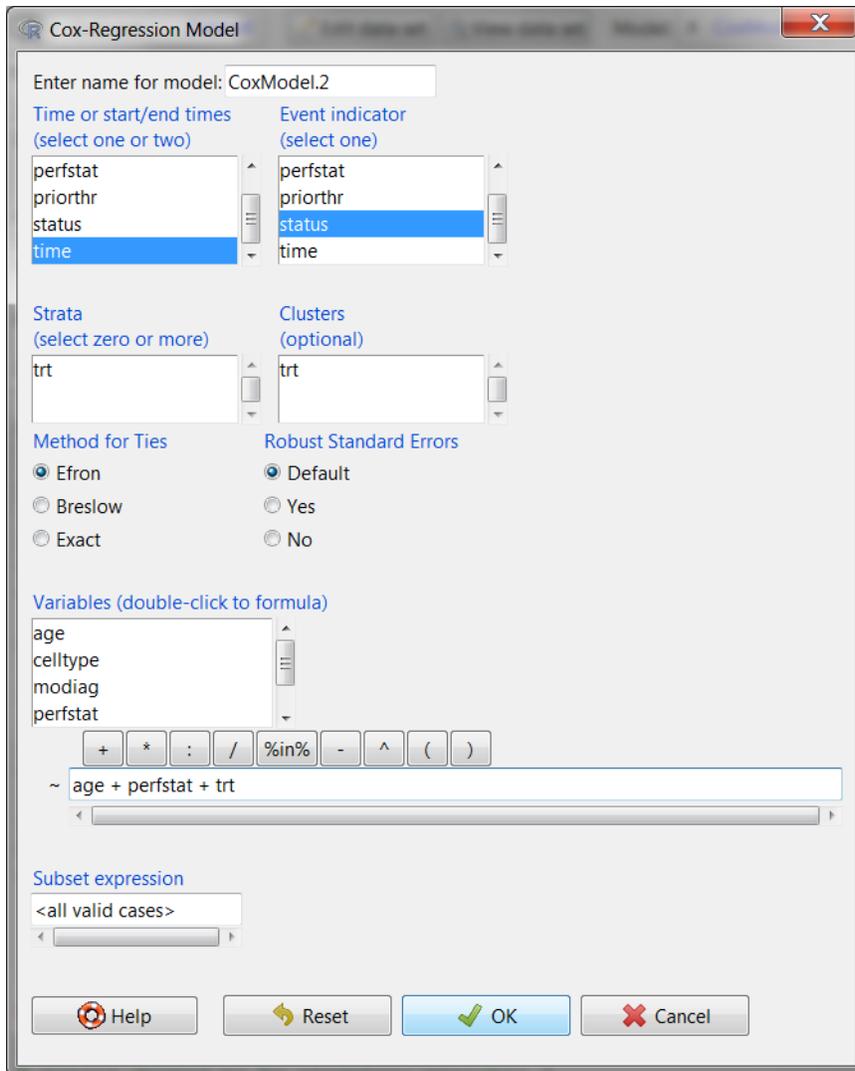
```
                   coef  exp(coef)  se(coef)        z  Pr(>|z|)
age             0.01740    1.01755   0.02201    0.791   0.42914
perfstat       -0.03603    0.96461   0.01124   -3.205   0.00135 **
trt[T.Treatment] -0.21016   0.81045   0.40846   -0.515   0.60688
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

                 exp(coef)  exp(-coef)  lower .95  upper .95
age                 1.0176      0.9827     0.9746     1.0624
perfstat            0.9646      1.0367     0.9436     0.9861
trt[T.Treatment]    0.8105      1.2339     0.3640     1.8047

Concordance= 0.707  (se = 0.064 )
Rsquare= 0.311   (max possible= 0.99 )
Likelihood ratio test= 13.04  on 3 df,   p=0.004551
Wald test            = 12.79  on 3 df,   p=0.005103
Score (logrank) test = 13.74  on 3 df,   p=0.003284
```