

## Running Rapp and editing Rapp programs

2018-02-28, Stig Rosenlund

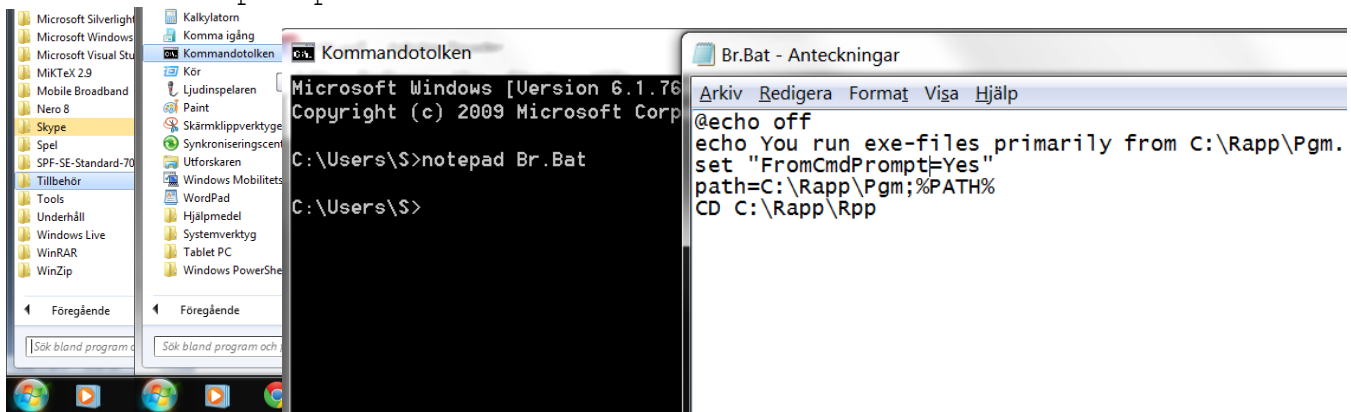
We assume you have created the folder C:\Rapp from the downloaded zipfile Rapp.zip or Rapp.zipx.

### 1. Run and edit Rapp.Exe without using Rappmenus.Exe

#### 1.A. Running Rapp from the command prompt

Initiation: create an environment at the command prompt  
Startmenu / All programs / Accessories / Command prompt

I illustrate how to do it below. In Swedish Accessories is Tillbehör and Command prompt is Kommandotolken.



Copy the five lines below.

```
@echo off
echo You run exe-files primarily from C:\Rapp\Pgm.
set "FromCmdPrompt=Yes"
path=C:\Rapp\Pgm;%PATH%
CD C:\Rapp\Rpp
```

At the prompt >, write

Notepad Br.Bat

Answer Yes to Create new file?

Paste the five lines into new file Br.Bat. Close up right and save.

Place a shortcut to Command prompt on the desktop or the Startmenu.

#### Daily use

When you are going to run a Rapp program, go into the Command prompt and write Br and press Enter.

For example there is a simple program C:\Rapp\Rpp\HelloWorld.Rpp. Run it at the Command prompt by

Rapp HelloWorld

### 1.B. Running Rapp from Windows Explorer

Initiation: Associate extent .Rpp to Rapp.Exe in Windows Explorer  
 Either run Adapt Exe or

Click or rightclick in Windows Explorer on a Rapp-program with extent .Rpp (for example Init.Rpp), select Open / Choose Program / Browse / locate Rapp.Exe and tick Always use this program.

#### Daily use

Run a Rapp-program by doubleclick or click+return in Windows Explorer. When its done, press enter to exit Rapp.

### **Advantages and disadvantages of running Rapp from the command prompt**

#### Advantages

1. It will always work, while the association in Windows Explorer might get lost and be difficult to restore due to authorization problems.
2. The working directory will always be C:\Rapp\Rpp. Some Rapp programs presume this. In Windows Explorer it might be something else.
3. As Rapp developer, I can make a sequence of versions of Rapp for testing some new feature, and run them quickly. For example I might make t1.exe, which is Rapp with some change, and run it in the command prompt with t1 tst1. That is inconvenient in Windows Explorer.

#### Disadvantages

1. It takes some time to write a long Rapp program name.
2. It has a feeling of being old and not elegant.

Disadvantage no 2 is just superficial, though.

### 1.C. Editing Rapp programs

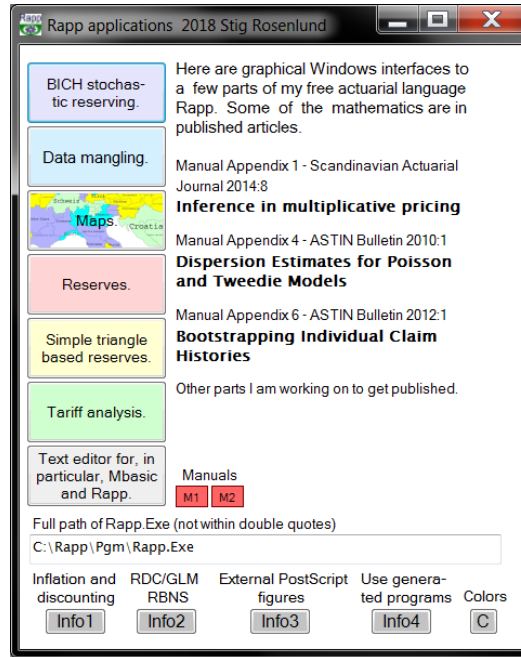
To write Rapp-programs you can use a text editor you're used to, such as the SAS source editor, Wordpad or Notepad. I recommend SPF Source Editor from CTC Command Technology Corporation. It costs some money, presently \$88 for perpetual use. Web site:

<http://www.commandtechnology.com>

### **2. Run and edit in Rappmenus.Exe.**

Besides these ways there is Rappmenus.Exe, which generates and runs Rapp programs for certain applications dynamically. In 2017 and 2018 it has been amended with a text editor, suitable for any text file. Rapp programs can be executed with a Run button. SPF has more capabilities, but takes some time to learn.

In Rappmenus, choose "Text editor for, in particular, Mbasic and Rapp." in the menu below.



The editor has coloring of special syntax words in Mbasic (part of Rapp, see Proc Mbasic in the manual) and Rapp in general. There is also syntax-sensitive coloring for C and for some of the keywords of SAS (those I used at Länsförsäkringar). I have emulated some of the functionality of SPF. An Mbasic- or general Rapp-program is run from the editor with a button. There are some useful template parmfiles to get you started in the folder Mbparm of the zip files Rapp.zip and Rapp.zipx. Place this folder on your computer as C:\Rapp\Mbparm. Find, replace and sort are extensively implemented. There are special features which facilitate debugging your Mbasic-program.

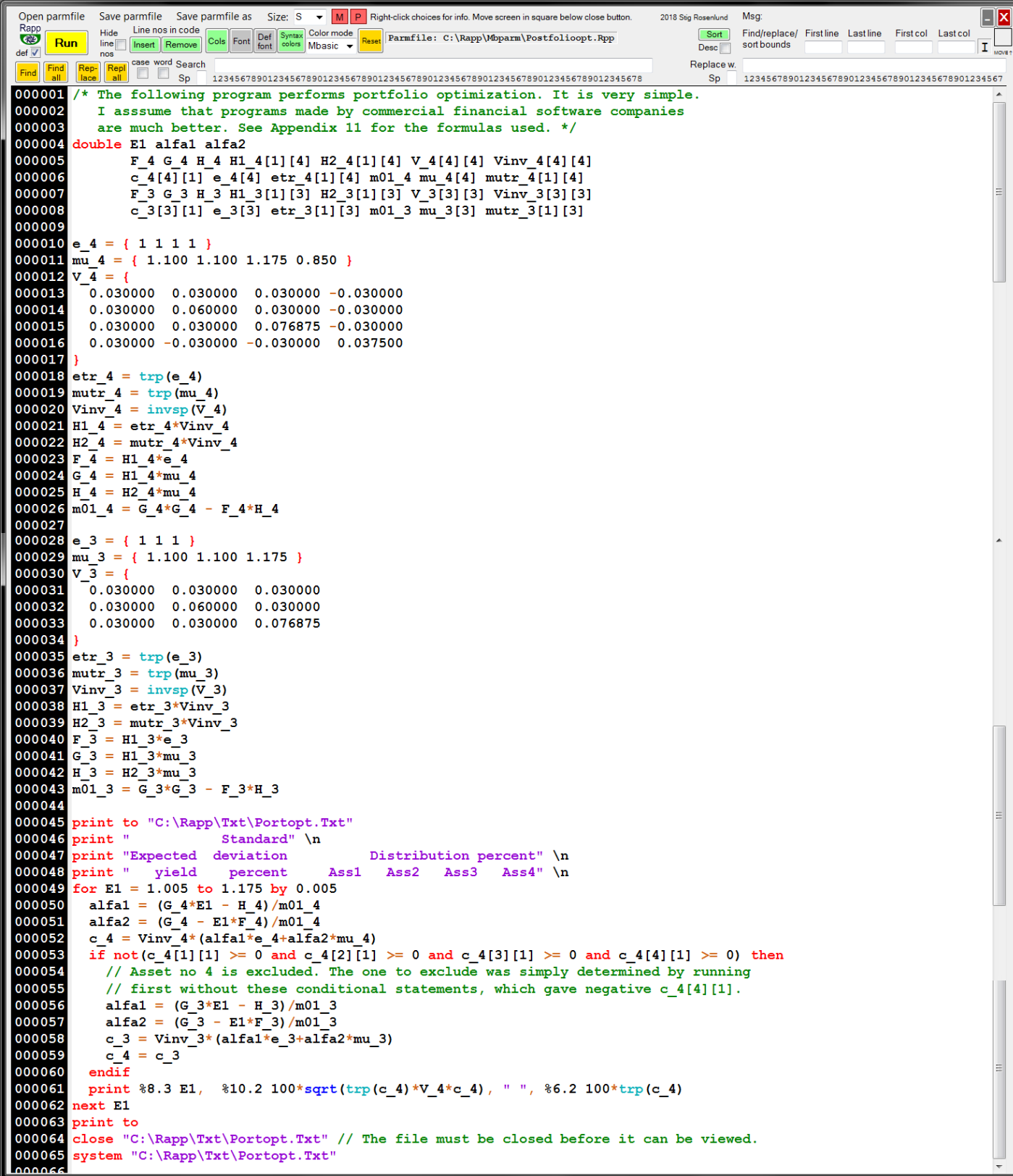
Below an example where an Mbasic-program is in the edit screen.

```

000001 /* Computes Euler constant 0.5772156649015... . Computation time
000002 increases rapidly with n, but n <= 15 will not take too long.
000003 Due to rounding errors the last few (about six) digits will be wrong.
000004 If you want k correct digits, set digits to k + 9 or so. */
000005 digits 306 // Maximum with Rapp - larger maximum with Rapp1008 etc.
000006 double m n
000007 mouble Hm One Sum Sumold Two Two_raised_to_n e_raised_to_Two_raised_to_n m01
000008 Read n // The computation will have a remainder term O(1/(2**n * exp(2**n))).
000009 One = 1
000010 Two = 2 Sum = 1
000011 Hm = 1
000012 m01 = 1
000013 Two_raised_to_n = Two**n
000014 e_raised_to_Two_raised_to_n = exp(Two_raised_to_n)
000015 For m=1 to 99999999999999 // Infinite loop interrupted by condition below.
000016 // Mouble variable One is needed for mouble precision.
000017 Hm = Hm + One/(m+1) // Harmonic series 1 + 1/2 + 1/3 + 1/4 + 1/5 + ...
000018 m01 = m01*Two_raised_to_n/(m+1)
000019 Sum = Sum + m01*Hm
000020 if Sum = Sumold then break endif // When the addition of m01*Hm is too small.
000021 Sumold = Sum
000022 Next m
000023 // log(Two) is needed since log(2) will yield precision only double.
000024 Sum = Sum*Two_raised_to_n/e_raised_to_Two_raised_to_n - n*log(Two)
000025 print "Approximate value of Euler's constant is:" \n,%1.300 Sum \n
000026 print to "C:\Rapp\Txt\Euler.Txt"
000027 print %1.300 Sum \n
000028 print to
000029 close "C:\Rapp\Txt\Euler.Txt"
000030 system "C:\Rapp\Txt\Euler.Txt" // See the result in Notepad.
000031

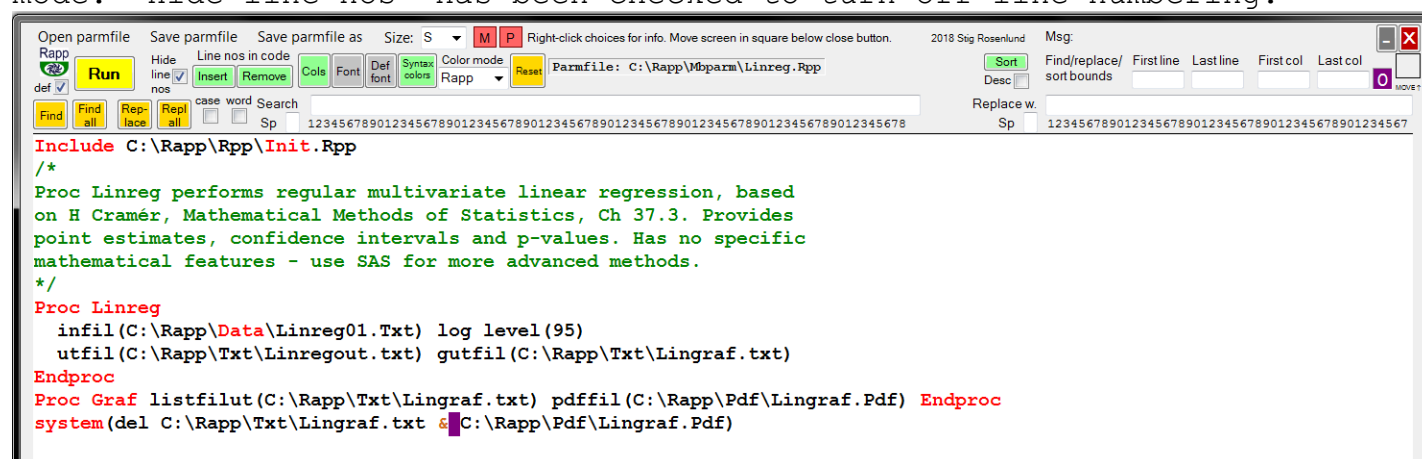
```

Another Mbasic-program. Several parts have been joined.

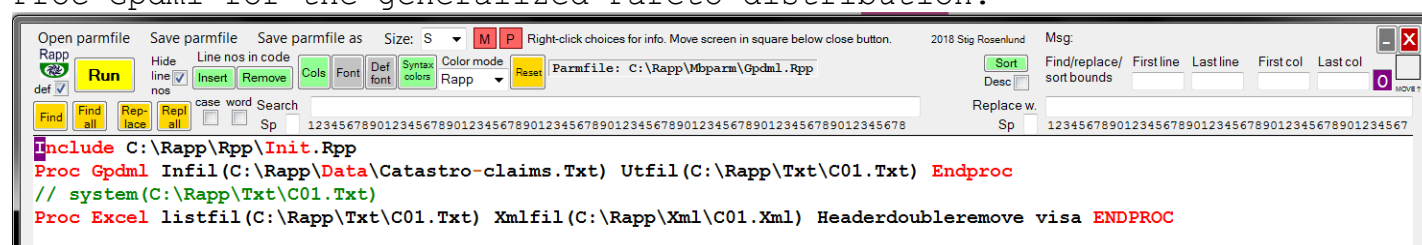


```
000001 /* The following program performs portfolio optimization. It is very simple.
000002 I assume that programs made by commercial financial software companies
000003 are much better. See Appendix 11 for the formulas used. */
000004 double E1 alfa1 alfa2
000005     F_4 G_4 H_4 H1_4[1][4] H2_4[1][4] V_4[4][4] Vinv_4[4][4]
000006     c_4[4][1] e_4[4] etr_4[1][4] m01_4 mu_4[4] mutr_4[1][4]
000007     F_3 G_3 H_3 H1_3[1][3] H2_3[1][3] V_3[3][3] Vinv_3[3][3]
000008     c_3[3][1] e_3[3] etr_3[1][3] m01_3 mu_3[3] mutr_3[1][3]
000009
000010 e_4 = { 1 1 1 1 }
000011 mu_4 = { 1.100 1.100 1.175 0.850 }
000012 V_4 = {
000013     0.030000 0.030000 0.030000 -0.030000
000014     0.030000 0.060000 0.030000 -0.030000
000015     0.030000 0.030000 0.076875 -0.030000
000016     0.030000 -0.030000 -0.030000 0.037500
000017 }
000018 etr_4 = trp(e_4)
000019 mutr_4 = trp(mu_4)
000020 Vinv_4 = invsp(V_4)
000021 H1_4 = etr_4*Vinv_4
000022 H2_4 = mutr_4*Vinv_4
000023 F_4 = H1_4*e_4
000024 G_4 = H1_4*mu_4
000025 H_4 = H2_4*mu_4
000026 m01_4 = G_4*G_4 - F_4*H_4
000027
000028 e_3 = { 1 1 1 }
000029 mu_3 = { 1.100 1.100 1.175 }
000030 V_3 = {
000031     0.030000 0.030000 0.030000
000032     0.030000 0.060000 0.030000
000033     0.030000 0.030000 0.076875
000034 }
000035 etr_3 = trp(e_3)
000036 mutr_3 = trp(mu_3)
000037 Vinv_3 = invsp(V_3)
000038 H1_3 = etr_3*Vinv_3
000039 H2_3 = mutr_3*Vinv_3
000040 F_3 = H1_3*e_3
000041 G_3 = H1_3*mu_3
000042 H_3 = H2_3*mu_3
000043 m01_3 = G_3*G_3 - F_3*H_3
000044
000045 print to "C:\Rapp\Txt\Portopt.Txt"
000046 print "          Standard" \n
000047 print "Expected deviation          Distribution percent" \n
000048 print "   yield   percent   Ass1   Ass2   Ass3   Ass4" \n
000049 for E1 = 1.005 to 1.175 by 0.005
000050     alfa1 = (G_4*E1 - H_4)/m01_4
000051     alfa2 = (G_4 - E1*F_4)/m01_4
000052     c_4 = Vinv_4*(alfa1*e_4+alfa2*mu_4)
000053     if not(c_4[1][1] >= 0 and c_4[2][1] >= 0 and c_4[3][1] >= 0 and c_4[4][1] >= 0) then
000054         // Asset no 4 is excluded. The one to exclude was simply determined by running
000055         // first without these conditional statements, which gave negative c_4[4][1].
000056         alfa1 = (G_3*E1 - H_3)/m01_3
000057         alfa2 = (G_3 - E1*F_3)/m01_3
000058         c_3 = Vinv_3*(alfa1*e_3+alfa2*mu_3)
000059         c_4 = c_3
000060     endif
000061     print %8.3 E1, %10.2 100*sqrt(trp(c_4)*V_4*c_4), " ", %6.2 100*trp(c_4)
000062 next E1
000063 print to
000064 close "C:\Rapp\Txt\Portopt.Txt" // The file must be closed before it can be viewed.
000065 system "C:\Rapp\Txt\Portopt.Txt"
000066
```

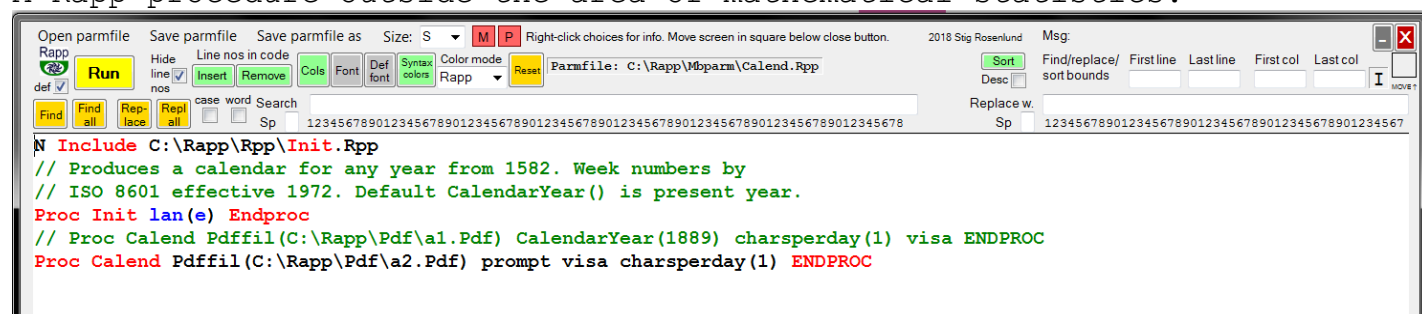
A Rapp-Program for multivariate linear regression, in Overwrite mode. "Hide line nos" has been checked to turn off line numbering.



Proc Gpdml for the generalized Pareto distribution.



A Rapp procedure outside the area of mathematical statistics.



All buttons and boxes are explained at right-click. The red button M displays the Rapp manual in pdf. The red button P next to it displays the text in edit in pdf. One can think of P as meaning Print, since the pdf file will give a good printout on paper with Ctrl+P.