

<http://www.stigrosenlund.se/rapp.htm>



## Reserve And Price Program

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A programming language for actuarial analysis.

- ✓ **R**obust – no Windows technical difficulties
- ✓ **A**llround tool for
  - data mangling
  - reserve calculus with graphics
  - tariff analysis with graphics
- ✓ **P**ractical – easy to use and flexible
- ✓ **P**roven – tested for many years

## Getting started with Rapp

Download the zip file in

<http://www.stigrosenlund.se/rappzip.htm>

If you do not have MiKTeX installed, install it from the link in

<http://www.stigrosenlund.se/AllInOne.htm>

## Updates

New versions of Rapp and the manuals are on the internet:

<http://www.stigrosenlund.se/rapp.htm> and subpages.

## Tools for writing Rapp programs

Rapp programs in C:\Rapp\Rpp, or in another folder where you want to put them, are created and modified using a suitable text editor. In Rappmenus there is an editor suited to Rapp. Best of all I think SPF editor and file manager is. It takes some time to learn, though. It is my all-purpose tool for many tasks, such as writing Rapp source code in C, etc. It is purchased from CTC Command Technology Corporation: <http://www.commandtechnology.com>

From its text: "SPF / source editing Provides File Management and Editing similar to IBM's mainframe-based ISPF." Price \$88 in December 2017. Depending on the employer's IT policy, it can be tedious to get it certified for workplace use.

## Format for input to Rapp

Input are text files with fields separated by one or more blank or by a delimiter. Here an example of a line in a semicolon separated file. This file is part of some mangling steps performed prior to tariff- or reserve analysis.

```
2000001;2000002;2000001;167.4;1;0;0;M;93.96;1;MK7 8HF;9
```

## Manufacturing input

- Manually with text editor
- From Excel and Access
- With Easytrieve in the mainframe
- From SAS with the Rapp procedure Proc Sasut. Example:

```
Proc Sasut libname(C:\sas) tabell(Tab1) textfil(C:\Rapp\Data\Rappdat1.txt)
```

```
var(arg1 arg2 dur riskpre skfrek msk kvadr) dlm(';') /* alt. dlm(9) = tab */
Endproc
```

## Data mangling customized for insurance

Rapp has a procedure for matching claims against insurance versions with conditions  $\text{Fromdat} \leq \text{Claimdate} < \text{Uptodate}$ . And a procedure for calculating duration and earned premium.

## A simple Rapp-program for tariff analysis

```
Include C:\Rapp\Rpp\Init.Rpp // Settings
Proc Taran listfil(C:\Rapp\Ut\Txt\L01.txt)
rub62 'Demo no 1';
infiler fil(C:\Rapp\Data\Rappdat1.txt) dlm(';')
var(Arg1 $ Arg2 $ Dur Skkost/Dur Antskad/Dur
Skkost/Antskad Kvadr); /* From SAS above */
arg(Arg1); arg(Arg2);
Endproc
```

- `listfil()` A report in text format
- `infiler` Infile and a record description as SAS
- `arg()` The arguments

## Benefits Proc Taran compared SAS Proc Genmod

- Ease of use.
- Short response time by optimized algorithms.
- Informative output.
- Classes may miss claims or even insurances.

Rapp uses efficient algorithms for processing the matrices in the GLM-equations, like Emblem. SAS is slow.

## Benefits of reserve application

- Several methods in addition to chainladder, eg the new RDC.
- Completely optional start- and end-date.
- Completely optional period length.
- Known claim cost and payments in the same analysis.
- Selection and/or distribution by geography and business.
- Selection of small claims, large claims or any claims.
- Several kinds of parametric curve fitting.

## **Rapp's history and general characteristics**

From the beginning Rapp only had tariff analysis with GLM Poisson loglink and some utility procedures. The functionality of Rapp has been expanded as needs were identified. Now it has GLM with  $\Gamma$ - and Tweedie loglink, reserve calculation, etc. Jobs have been conducted solely by Rapp, without access to SAS or other purchased software.

The basic program is technically simple and is contained in a single exe file Rapp.Exe, after you rename the right one of the exe files on the Rapp site. No other exe files or DLLs are included in Rapp. Rapp's expected sustainability is long.

In addition there is the Visual Basic shell program Rappmenus.Exe above Rapp.Exe, which now also has an editor.

For the graphics is needed software that converts PostScript to PDF. Shareware programs are in MiKTeX, which is downloadable for free from the Internet.

Upon detection of a bug, please send to my e-mail a description of it and, if necessary for correction, programs and data that make the bug appear. I do not charge for corrections.

Issues where the manual does not seem to give a clear or complete answer may also be sent to me. I do not charge any money.

This document: <http://www.stigrosenlund.se/matstat/Rapp-pr.pdf>

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