1 Introduction and example usage

The monitor script is used for monitoring an active scm or scmplus run. Below are three snapshots from continuous monitoring of an scm run.

```
monitor phenobarbital.1 -interval=1
```

```
Model             Forward_3      ofvdrop exceed_eval  N_test    N_ok N_localmin N_failed StepSelected
CLCV1-5                  ok         4.68           0       2       2          0        0       -
VCVD1-2             started         1.51                   2       2          0        0       -
VCV2-5                   ok         0.96           0       2       2          0        0       -
CLCV2-5                  ok         0.08           0       2       2          0        0       -
CLAPGR-2            started         0.02                   2       2          0        0       -
CLWGT-5                               -                   2       2          0        0       2
VCVD2-2          notStarted           -                   2       2          0        0       -
VWGT-5                                -                   1       1          0        0       1

Model             Forward_3      ofvdrop exceed_eval  N_test    N_ok N_localmin N_failed StepSelected
CLAPGR-2            started         9.99                   2       2          0        0       -
CLCV1-5                  ok         4.68           0       2       2          0        0       -
VCVD1-2                  ok         1.51           0       2       2          0        0       -
VCV2-5                   ok         0.96           0       2       2          0        0       -
CLCV2-5                  ok         0.08           0       2       2          0        0       -
VCVD2-2             started         0.01                   2       2          0        0       -
CLWGT-5                               -                   2       2          0        0       2
VWGT-5                                -                   1       1          0        0       1

Model            Backward_1      ofvdrop exceed_eval  N_test    N_ok N_localmin N_failed StepSelected BackstepRemoved
CLWGT-5             started      -134.49                   2       2          0        0       2               -
VWGT-5              started      -134.53                   1       1          0        0       1               -
CLAPGR-2                              -                   3       3          0        0       -               -
CLCV1-5                               -                   3       3          0        0       -               -
CLCV2-5                               -                   3       3          0        0       -               -
VCV2-5                                -                   3       3          0        0       -               -
VCVD1-2                               -                   3       3          0        0       -               -
VCVD2-2                               -                   3       3          0        0       -               -
```

2 Output columns

Model
The name of the model in the scm log file, which is composed of the parameter, covariate and state number.

2.1 Columns summarizing the current iteration

These columns only appear in the output from monitor when there is a current iteration. When the last iteration has finished, these columns are not present.

Forward/Backward_N
The column header is a unique identifier of the current iteration, composed of the search direction and the step number N in that direction. The column contents is the state in the current iteration for each model, for example notStarted, started or ok. The column is empty for models that are not run in the current iteration, for example models representing already selected parameter-covariate relations.

ofvdrop
The drop in ofv for each model. For a started but not finished model the current ofv is read from the psn.ext in the NM_run subdirectory, and the drop relative the base model for the current iteration is computed. For continuous monitoring this value will be updated several times before the model is finished, as NONMEM writes new lines to psn.ext. Often ofvdrop can be negative at the start of a run, i.e. the current ofv is worse than the ofv of the base model. The column contains a - for models that are not run in the current iteration.

exceed_eval
This column will indicate whether a finished model had a NONMEM message about maximum number of evaluations exceeded in the termination message. 0 means no, 1 means yes, and empty means model either not finished or not run.

2.2 Columns summarizing all iterations except the current

These columns summarize the contents of the scm log file. They are not present until at least one iteration has been finished and written by PsN to the scm log file. NONMEM files are not parsed.

N_test
The number of times, i.e. in how many iterations, the parameter-covariate relation has been tested.

N_ok
How many times, out of N_test, does the scm log file list an ofv that such that extended model has lower ofv than the base model?

N_localmin
How many times, out of N_test, did the run end in a local minimum, i.e. the log file lists a higher ofv for the extended model than for the base model?

N_failed
How many times, out of N_test, did the scm log file state that the model failed?

StepSelected
In which forward step, if any, was the parameter-covariate relation selected?

StepStashed
Only for scmplus: In which forward step, if any, was the parameter-covariate relation stashed, i.e. removed from the set of relations tested again?

StepReadded
Only for scmplus: In which forward step, if any, was a previously stashed parameter-covariate relation retested?

BackstepRemoved
Both for scm and scmplus: In which backward step, if any, was a previously selected parameter-covariate relation removed?

3 Input and options

3.1 Required input

The name of an scm or scmplus run directory is a required argument.

3.2 Optional input

−interval = *N*
: Invoke continuous monitoring by specifying the number of seconds between each summary of the run status. Without option -interval, continuous monitoring is turned off.

−help
: Print help text and exit.

−version
: Print version information and exit.