NAME

npsma – CUTEr NPSOL test driver

SYNOPSIS

npsma

DESCRIPTION

The *npsma* main program test drives NPSOL on SIF problems from the CUTEr distribution.

The NPSOL package is designed to minimize smooth functions subject to constraints, which may include simple bounds, linear constraints, and smooth nonlinear constraints. The software uses a sequential quadratic programming algorithm, where bounds, linear constraints and nonlinear constraints are treated separately. NPSOL stores all matrices in dense format, and is therefore not intended for large sparse problems. NPSOL has been written by Gill, Murray, Saunders and Wright, and is available from the Office of Technology Licensing at Stanford University.

The object module *npsma.o* is stored in $MYCUTER/*precision*/bin, where *precision* is either "single" or "double", according to your local installation.

USAGE

Concatenate the following .f files into a single file named npsol.f:

chsubs.f	npsolsubs.f
cmsubs.f	opsubs.f
f06subs.f	qrsubs.f
lssolsubs.f	srsubs.f
mcsubs.f	

Compile (but do not link) the NPSOL source code and copy the resulting object file npsol.o in the directory $MYCUTER/*precision*/bin. Launch using nps(1) or sdnps(1).

OUTPUT

The main output from NPSOL is written (by default) in a file named fort.9, and then renamed to NPSOL.LIS by nps. (This file is subsequently renamed to probname.nps by sdnps.) If this unit number has been changed in the NPSOL source code, then it must also be changed in the shell script nps. The unit number may also be changed in the NPSOL.SPC file, by adding the following line:

```
Print File  n
```

where n is the new unit number. Again, if fort.n is to be renamed to NPSOL.LIS by nps, the unit number must also be changed in nps.

In addition, NPSOL can create a summary of the problem output. By the source code default, this summary is sent to unit 0, and thus does not appear anywhere. The CUTE default version of NPSOL.SPC includes the line

```
Summary  6
```

which means that the summary output is directed to standard output. Of course, this line may be changed or deleted from NPSOL.SPC if you wish to direct the summary output elsewhere.

NOTE

If no NPSOL.SPC file is present in the current directory, the default version is copied from $CUTER/common/src/pkg/npsol/.

The file NPSOL.SPC may be used to set various NPSOL parameters. These parameters are described in the chapter 'Optional Input Parameters' in the User's Guide for NPSOL.

The CUTE default version of NPSOL.SPC includes only one line, to direct the summary output to unit 6 (standard output). All other parameters therefore assume their default values.

ENVIRONMENT

CUTER

Parent directory for CUTEr

MYCUTER

Home directory of the installed CUTEr distribution.

AUTHORS

I. Bongartz, A.R. Conn, N.I.M. Gould, D. Orban and Ph.L. Toint

SEE ALSO

CUTEr (and SifDec): A Constrained and Unconstrained Testing Environment, revisited,
N.I.M. Gould, D. Orban and Ph.L. Toint,
ACM TOMS, **29**:4, pp.373-394, 2003.

CUTE: Constrained and Unconstrained Testing Environment, I. Bongartz, A.R. Conn, N.I.M. Gould and Ph.L. Toint, TOMS, **21**:1, pp.123-160, 1995.

User's Guide for NPSOL (Version 4.0): A Fortran Package for Nonlinear Programming, P.E. Gill, W. Murray, M.A. Saunders and M.H. Wright, Technical Report SOL 86-2, Systems Optimization Laboratory, Department of Operations Research, Stanford University, Stanford, USA, January 1986.