NAME

ve14ma – CUTEr VE14 test driver

SYNOPSIS

ve14ma

DESCRIPTION

The *ve14ma* main program test drives VE14 on SIF problems from the CUTEr distribution.

VE14 is a subroutine for the solution of the general, large, quadratic programming problem within a feasible region defined by simple bound constraints. It uses a barrier-type algorithm, and provides a choice between the classical log-barrier function, the Jittorntrum-Osborne barrier and the Lagrangian barrier of Conn, Gould and Toint. The first two choices only generate feasible points, while the last has often proved to be the fastest.

VE14 is part of the HARWELL SUBROUTINE LIBRARY, and was written by Nick Gould. It is available from the United Kingdom Atomic Energy Authority, Harwell, subject to certain license agreements. It is copyrighted jointly by the UKAEA and SERC (Science and Engineering Research Council).

USAGE

To build the *precision* precision version, the VE14 *precision* subroutine and dependencies should be concatenated in a new file called ve14.f. This file should then be compiled (but not linked) and the resulting object file ve14.o placed in the direcotory $MYCUTER/*precision*/bin/.

NOTE

If no VE14.SPC file is present in the current directory, the default version is copied from $CUTER/common/src/pkg/ve14/. Default specifications are as follows:

3	ITYPEB,	barrier (1=classical, 2=Osborne+Jittorntrum,3=Lagrangian)
0.00001	STOPG,	projected gradient stopping tolerance

The reader is referred to the papers quoted below, the documentation of the routine in the Harwell Subroroutine Library or the code itself if he or she wishes to modify these parameters.

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.

Nonlinear programming: sequential unconstrained minimization techniques, A. Fiacco and G. McCormick, Wiley, New York, 1968.

A modified barrier function method with improved rate of convergence for degenerate problems, K. Jittorntrum and M. Osborne, Journal of the Australian Mathematical Society, Series B, vol. 21. pp. 305-329, 1980.

A globally convergent Lagrangian barrier algorithm for optimization with general inequality constraints and simple bounds, A.R. Conn, N. Gould and Ph.L. Toint, Mathematics of Computation, to appear, 1996.

A catalogue of subroutines (release 11), Harwell Subroutine Library, Advanced Computing Department, Harwell Laboratory, Harwell, UK, 1993.

sdve14(1), ve14(1).