

**NAME**

CUTEST\_cdimsh – CUTEst tool to determine the number of nonzeros needed to store the Hessian of the Lagrangian function for the problem decoded from a SIF file by the script *sifdecoder*.

**SYNOPSIS**

CALL CUTEST\_cdimsh( status, nnzh )

**DESCRIPTION**

The CUTEST\_cdimsh subroutine determines the number of nonzero elements required to store the Hessian matrix of the Lagrangian function for the problem decoded into OUTSDIF.d in the constrained minimization case. The matrix is stored in sparse "coordinate" format.

The problem under consideration is to minimize or maximize an objective function  $f(x)$  over all  $x \in R^n$  subject to general equations  $c_i(x) = 0$ , ( $i \in 1, \dots, m_E$ ), general inequalities  $c_i^l(x) \leq c_i(x) \leq c_i^u(x)$ , ( $i \in m_E + 1, \dots, m$ ), and simple bounds  $x^l \leq x \leq x^u$ . The objective function is group-partially separable and all constraint functions are partially separable.

**ARGUMENTS**

The arguments of CUTEST\_cdimsh are as follows

**status** [out] - integer

the output status: 0 for a succesful call, 1 for an array allocation/deallocation error, 2 for an array bound error, 3 for an evaluation error,

**nnzh** [out] - integer

the number of nonzero elements required to store the matrix.

**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.

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