

NAG Fortran Library Chapter Contents

E04 – Minimizing or Maximizing a Function

Note: please refer to the Users' Note for your implementation to check that a routine is available.

E04 Chapter Introduction

Routine Name	Mark of Introduction	Purpose
E04ABA	20	Minimum, function of one variable using function values only (thread safe)
E04ABF	6	Minimum, function of one variable using function values only
E04BBA	20	Minimum, function of one variable, using first derivative (thread safe)
E04BBF	6	Minimum, function of one variable, using first derivative
E04CCA	20	Unconstrained minimum, simplex algorithm, function of several variables using function values only (comprehensive) (thread safe)
E04CCF	1	Unconstrained minimum, simplex algorithm, function of several variables using function values only (comprehensive)
E04DGA	20	Unconstrained minimum, preconditioned conjugate gradient algorithm, function of several variables using first derivatives (comprehensive) (thread safe)
E04DGF	12	Unconstrained minimum, preconditioned conjugate gradient algorithm, function of several variables using first derivatives (comprehensive)
E04DJA	20	Supply optional parameter values for E04DGF/E04DGA from external file (thread safe)
E04DJF	12	Supply optional parameter values for E04DGF/E04DGA from external file
E04DKA	20	Supply optional parameter values to E04DGF/E04DGA (thread safe)
E04DKF	12	Supply optional parameter values to E04DGF/E04DGA
E04FCF	7	Unconstrained minimum of a sum of squares, combined Gauss–Newton and modified Newton algorithm using function values only (comprehensive)
E04FYF	18	Unconstrained minimum of a sum of squares, combined Gauss–Newton and modified Newton algorithm using function values only (easy-to-use)
E04GBF	7	Unconstrained minimum of a sum of squares, combined Gauss–Newton and quasi-Newton algorithm using first derivatives (comprehensive)
E04GDF	7	Unconstrained minimum of a sum of squares, combined Gauss–Newton and modified Newton algorithm using first derivatives (comprehensive)
E04GYF	18	Unconstrained minimum of a sum of squares, combined Gauss–Newton and quasi-Newton algorithm, using first derivatives (easy-to-use)
E04GZF	18	Unconstrained minimum of a sum of squares, combined Gauss–Newton and modified Newton algorithm using first derivatives (easy-to-use)
E04HCF	6	Check user's routine for calculating first derivatives of function
E04HDF	6	Check user's routine for calculating second derivatives of function
E04HEF	7	Unconstrained minimum of a sum of squares, combined Gauss–Newton and modified Newton algorithm, using second derivatives (comprehensive)
E04HYF	18	Unconstrained minimum of a sum of squares, combined Gauss–Newton and modified Newton algorithm, using second derivatives (easy-to-use)
E04JYF	18	Minimum, function of several variables, quasi-Newton algorithm, simple bounds, using function values only (easy-to-use)
E04KDF	6	Minimum, function of several variables, modified Newton algorithm, simple bounds, using first derivatives (comprehensive)
E04KYF	18	Minimum, function of several variables, quasi-Newton algorithm, simple bounds, using first derivatives (easy-to-use)
E04KZF	18	Minimum, function of several variables, modified Newton algorithm, simple bounds, using first derivatives (easy-to-use)
E04LBF	6	Minimum, function of several variables, modified Newton algorithm, simple bounds, using first and second derivatives (comprehensive)

E04LYF	18	Minimum, function of several variables, modified Newton algorithm, simple bounds, using first and second derivatives (easy-to-use)
E04MFA	20	LP problem (dense) (thread safe)
E04MFF	16	LP problem (dense)
E04MGA	20	Supply optional parameter values for E04MFF/E04MFA from external file (thread safe)
E04MGF	16	Supply optional parameter values for E04MFF/E04MFA from external file
E04MHA	20	Supply optional parameter values to E04MFF/E04MFA (thread safe)
E04MHF	16	Supply optional parameter values to E04MFF/E04MFA
E04MZF	18	Converts MPSX data file defining LP or QP problem to format required by E04NQF
E04NCA	20	Convex QP problem or linearly-constrained linear least-squares problem (dense) (thread safe)
E04NCF	12	Convex QP problem or linearly-constrained linear least-squares problem (dense)
E04NDA	20	Supply optional parameter values for E04NCF/E04NCA from external file (thread safe)
E04NDF	12	Supply optional parameter values for E04NCF/E04NCA from external file
E04NEA	20	Supply optional parameter values to E04NCF/E04NCA (thread safe)
E04NEF	12	Supply optional parameter values to E04NCF/E04NCA
E04NFA	20	QP problem (dense) (thread safe)
E04NFF	16	QP problem (dense)
E04NGA	20	Supply optional parameter values for E04NFF/E04NFA from external file (thread safe)
E04NGF	16	Supply optional parameter values for E04NFF/E04NFA from external file
E04NHA	20	Supply optional parameter values to E04NFF/E04NFA (thread safe)
E04NHF	16	Supply optional parameter values to E04NFF/E04NFA
E04NKA**	20	LP or QP problem (sparse) (thread safe)
E04NKF**	18	LP or QP problem (sparse)
E04NLA**	20	Supply optional parameter values for E04NKF/E04NKA from external file (thread safe)
E04NLF**	18	Supply optional parameter values for E04NKF/E04NKA from external file
E04NMA**	20	Supply optional parameter values to E04NKF/E04NKA (thread safe)
E04NMF**	18	Supply optional parameter values to E04NKF/E04NKA
E04NPF	21	Initialization routine for E04NQF
E04NQF	21	LP or QP problem (suitable for sparse problems)
E04NRF	21	Supply optional parameter values for E04NQF from external file
E04NSF	21	Set a single option for E04NQF from a character string
E04NTF	21	Set a single option for E04NQF from an INTEGER argument
E04NUF	21	Set a single option for E04NQF from a <i>double precision</i> argument
E04NXF	21	Get the setting of an INTEGER valued option of E04NQF
E04NYF	21	Get the setting of a <i>double precision</i> valued option of E04NQF
E04UCA**	20	Minimum, function of several variables, sequential QP method, nonlinear constraints, using function values and optionally first derivatives (forward communication, comprehensive) (thread safe)
E04UCF**	12	Minimum, function of several variables, sequential QP method, nonlinear constraints, using function values and optionally first derivatives (forward communication, comprehensive)
E04UDA	20	Supply optional parameter values for E04UCF/E04UCA or E04UFF/E04UFA from external file (thread safe)
E04UDF	12	Supply optional parameter values for E04UCF/E04UCA or E04UFF/E04UFA from external file
E04UEA	20	Supply optional parameter values to E04UCF/E04UCA or E04UFF/E04UFA (thread safe)
E04UEF	12	Supply optional parameter values to E04UCF/E04UCA or E04UFF/E04UFA
E04UFA	20	Minimum, function of several variables, sequential QP method, nonlinear constraints, using function values and optionally first derivatives (reverse communication, comprehensive) (thread safe)

E04UFF	18	Minimum, function of several variables, sequential QP method, nonlinear constraints, using function values and optionally first derivatives (reverse communication, comprehensive)
E04UGA	20	NLP problem (sparse) (thread safe)
E04UGF	19	NLP problem (sparse)
E04UHA	20	Supply optional parameter values for E04UGF/E04UGA from external file (thread safe)
E04UHF	19	Supply optional parameter values for E04UGF/E04UGA from external file
E04UJA	20	Supply optional parameter values to E04UGF/E04UGA (thread safe)
E04UJF	19	Supply optional parameter values to E04UGF/E04UGA
E04UNF*	17	Minimum of a sum of squares, nonlinear constraints, sequential QP method, using function values and optionally first derivatives (comprehensive)
E04UQA	20	Supply optional parameter values for E04USF/E04USA from external file (thread safe)
E04UQF	14	Supply optional parameter values for E04USF/E04USA from external file
E04URA	20	Supply optional parameter values to E04USF/E04USA (thread safe)
E04URF	14	Supply optional parameter values to E04USF/E04USA
E04USA	20	Minimum of a sum of squares, nonlinear constraints, sequential QP method, using function values and optionally first derivatives (comprehensive) (thread safe)
E04USF	20	Minimum of a sum of squares, nonlinear constraints, sequential QP method, using function values and optionally first derivatives (comprehensive)
E04VGF	21	Initialization routine for E04VHF
E04VHF	21	General sparse nonlinear optimizer
E04VJF	21	Determine the pattern of nonzeros in the Jacobian matrix for E04VHF
E04VKF	21	Supply optional parameter values for E04VHF from external file
E04VLF	21	Set a single option for E04VHF from a character string
E04VMF	21	Set a single option for E04VHF from an INTEGER argument
E04VNF	21	Set a single option for E04VHF from a <i>double precision</i> argument
E04VRF	21	Get the setting of an INTEGER valued option of E04VHF
E04VSF	21	Get the setting of a <i>double precision</i> valued option of E04VHF
E04WBF	20	Initialization routine for E04DGA E04MFA E04NCA E04NFA E04UFA E04UGA E04USA
E04WCF	21	Initialization routine for E04WDF
E04WDF	21	Solves the nonlinear programming (NP) problem
E04WEF	21	Supply optional parameter values for E04WDF from external file
E04WFF	21	Set a single option for E04WDF from a character string
E04WGF	21	Set a single option for E04WDF from an INTEGER argument
E04WHF	21	Set a single option for E04WDF from a <i>double precision</i> argument
E04WJF	21	Determine whether an E04WDF option has been set or not
E04WKF	21	Get the setting of an INTEGER valued option of E04WDF
E04WLF	21	Get the setting of a <i>double precision</i> valued option of E04WDF
E04XAA	20	Estimate (using numerical differentiation) gradient and/or Hessian of a function (thread safe)
E04XAF	12	Estimate (using numerical differentiation) gradient and/or Hessian of a function
E04YAF	7	Check user's routine for calculating Jacobian of first derivatives
E04YBF	7	Check user's routine for calculating Hessian of a sum of squares
E04YCF	11	Covariance matrix for nonlinear least-squares problem (unconstrained)
E04ZCA	20	Check user's routines for calculating first derivatives of function and constraints (thread safe)
E04ZCF	11	Check user's routines for calculating first derivatives of function and constraints

* This routine is scheduled for withdrawal at Mark 22. See the document 'Advice on Replacement Calls for Withdrawn/Superseded Routines' for details of the recommended replacement routine.

** This routine has been superseded, although it will be retained in the Library until at least Mark 23. See the document 'Advice on Replacement Calls for Withdrawn/Superseded Routines' for details of the recommended replacement routine.
