

PcLinAlgXLL Release Notes Version 1.2.0

These are the release notes for version 1.2.0 of the Ponderosa Computing (32-bit) Linear Algebra Excel add-in.

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Features

This add-in implements the following Excel worksheet functions:

Scalar-Valued Matrix Metrics	Functions
Determinant	LA.DET
1-norm (column norm)	LA.NORM1
2-norm (spectral norm)	LA.NORM2
Infinity-norm (row norm)	LA.NORMINF
Frobenius norm	LA.NORMF
Rank	LA.RANK
Spectral radius	LA.SRAD
Trace	LA.TRACE

1-norm inverse condition number	LA.ICNBR1
Infinity-norm inverse condition number	LA.ICNBRINF
Linear System Solvers	Functions
Square (full-rank) system solver	LA.SYS.SLV, LA.SYS.SLVE
General system solver (via LQ/QR)	LA.SYS.LS, LA.SYS.LSE
General system solver (via SVD)	LA.SYS.LSS, LA.SYS.LSSE
Singular Value Decomposition	Functions
Singular values	LA.SNGVL.C, LA.SNGVL.R,
Singular values with error bound	LA.SNGVLE.C, LA.SNGVLE.R
Left or right singular vectors	LA.LSNGVC, LA.RSNGVC
Full singular value decomposition	LA.SV
Eigenvalues and Eigenvectors	Functions
Eigenvalues	LA.EGNVL.C, LA.EGNVL.R
Eigenvalues with error bound	LA.EGNVLE.C, LA.EGNVLE.R
Eigenvalues and right eigenvectors	LA.REGNVC
Cholesky Factorization	Functions
Lower and upper Cholesky factorizations	LA.CHOL.L, LA.CHOL.U
Matrix Creation and Extraction	Functions
Create constant matrix	LA.GEN.CON, LA.RGN.CON
Create random matrix	LA.GEN.RAN, LA.RGN.RAN
Create identity matrix	LA.GEN.IDN
Create diagonal matrix	LA.GEN.DIAG
Extract diagonal elements	LA.XDIAG.C, LA.XDIAG.R

Replacement Matrix Operations

Functions

Matrix multiplication

LA.MUL

Matrix transpose multiplication

LA.TMUL, LA.MULT

Matrix transpose

LA.TRN

Requirements

This Excel add-in requires:

1. Microsoft Windows 7, 8, or 10.
2. Microsoft Excel (32-bit) version 2007 or later.

Implementation

The Ponderosa Computing Linear Algebra Excel Add-in uses the [CLAPACK](#) implementation of the LAPACK software package.

Known Issues

1. This Excel XLL add-in was built using [CLAPACK](#) version 3.2.1. LAPACK enhancements and bug fixes implemented in subsequent versions of LAPACK have not yet been included in this add-in.

Changes from Previous Versions

From Release 1.1.2:

1. The add-in was built using Visual Studio 2017 Platform Toolset v141. The corresponding Visual C++ Redistributable will be installed if necessary.
2. Unneeded exported functions have been removed from the XLL.

From Release 1.1.1:

1. A conflict between menu commands across multiple add-ins has been corrected.

From Release 1.1.0:

1. The install package can be installed over the current version.
2. Custom installation dialog images were added.
3. The Excel add-in Registration Dialog has been removed and the About Dialog has been simplified.