

What's New in Mathcad 14.0

Mathcad 14.0 is PTC's first global release of Mathcad since the acquisition of Mathsoft in April 2006. This release offers several significant enhancements which improve the personal and engineering process productivity benefits currently offered by the Mathcad product family.

Global Language Support in 9 Languages

Mathcad is now available in the same 9 languages that PTC has historically offered: English, German, French, Italian, Spanish, Japanese, Traditional and Simplified Chinese, Korean.

Full Unicode Support

Unicode enables consistent worksheet display regardless of operating system, locale or language setting. Users can use all necessary region- and discipline-correct notation in any area of a Mathcad worksheet including variable names, plot labels, etc. Mathcad now offers better support for Asian characters, improving usability, streamlining insertion of Japanese characters, and increasing personal productivity and global collaboration.

Improved Calculation Power and Clarity with Worksheet Analysis

- New worksheet compare feature enables users to visually compare 2 similar worksheets and quickly identify added, changed, or removed regions. This enhances collaboration, worksheet reuse, and the engineer's ability to audit engineering calculations.
- Enhanced worksheet search now identifies search results in collapsed (hidden) regions of worksheets, enabling a more complete reporting of search results. This improves engineering design efficiency, quality, and collaboration.

Inline Numeric Evaluation and Enhancements to Explicit Calculation

- This capability allows users to define and evaluate equations in a single statement- one line- enabling compact documentation and support for standard report formats. This saves space on the worksheet and improves worksheet organization and clarity.
- Inline numeric evaluation also improves the existing explicit calculation capability by binding the variable name to the result of the inline numeric evaluation. Explicit calculations allow users to substitute values for variables in equations to document and verify that the correct values are being used to calculate the result. Users can leverage the enhancement in Mathcad 14.0 when documenting intermediate equations and results in explicit calculations. Improving the clarity of explicit calculations enables faster verification, validation and auditing of engineering calculations. This enhancement benefits engineers who submit worksheets as part of a design proposal, standards compliance document, or other formal report.

Enhanced Symbolics

- Mathcad 14.0 offers a significant Symbolics update which includes new and enhanced capabilities such as symbolic vectorization, solve fully, new and enhanced keywords, continued fraction expansion, extended, piecewise, and repeating solutions. This enables users to derive formulas, demonstrate process, and document engineering reasoning. Power users, research and design engineers, and other Ph.D. level users requiring symbolics will benefit from these improvements.
- New gradient operator and Jacobian matrices. These new symbolic features enable vector analysis, particularly as input for genfit and stiff ODE solvers. Applicable in both symbolics and numerical analysis, these features enable streamlined and clearer vector analysis calculations for many users including power users and mechanical design engineers.

Enhancements in Mathematic Solvers

These enhancements allow users to solve and document a broader range of engineering design problems.

- New and improved ordinary differential equation (ODE) solvers enable faster, more reliable calculations. Solves ODEs faster and more reliably for design problems with varying scale and periodicity of solutions. Reduces the expertise required to solve difficult ODE problems. This improvement benefits a broad range of engineers, especially mechanical engineers.
- Statespace for ODE matrix operations. Enter linear systems of ODEs in a discipline-correct statespace notation. More discipline-specific notation for documenting and capturing intellectual property. This benefits users that develop and analyze control engineering designs.

Enhancements in Plot Formatting

Allow users to create better graphical reports, improving documentation, communication and collaboration throughout the product development process.

- New tab for customizing number format on 2D plot axes allows users to quickly customize graphs.
- Support for negative radii on polar plots results in an alternate style of polar plots, improving plot quality and clarity. Polar plot improvements in Mathcad 14.0 are useful for electrical design engineers analyzing electromagnetic radiation for communications or antenna design applications.

Increased PTC Support

With Mathcad 14.0, customers on active maintenance now have access to PTC's global 24X7 technical support. This significantly increases the previous technical support offering, giving customers the support they need anytime, anywhere. Single users will activate Mathcad 14.0 new licenses and upgrade licenses using PTC's automated licensing infrastructure. Mathcad's new FlexLM license management implementation for single users offers a more robust activation process and improves the end-user experience.

Documentation Enhancements

Localized Documentation

Mathcad documentation and help resources are now localized into all 9 languages that PTC supports including English, French, German, Italian, Spanish, Japanese, Korean, and Simplified and Traditional Chinese.

New Additions to Mathcad Resources

Mathcad's online resources continue to provide hundreds of worksheets that illustrate the depth of Mathcad's mathematical power and the variety of applications that Mathcad supports. All of these worksheets are live, so as you read the Tutorials or QuickSheets you can watch Mathcad at work, change the inputs, and see the results in the outputs as they update. A new Solving and Optimization E-book is now available with Mathcad 14.0. (English only)

Migration Guide

In addition to the traditional Help and Resources, Mathcad 14.0 documentation offers an important resource for experienced users. The Migration Guide discusses math constructs that have been upgraded in recent versions and any incompatibilities those may create with older versions of Mathcad. This enables customers to quickly get up to speed on the latest version of Mathcad and leverage their existing intellectual property.

Mathcad Calculation Server Enhancements

- The Mathcad Calculation Server includes all of the functional capabilities of Mathcad 14.0.
- The Mathcad Calculation Server now includes all Mathcad extension packs to fully support Mathcad worksheets that utilize calculation functions that are only available in the extension packs and not in the base Mathcad product.

Localized Documentation

- Mathcad Calculation Server documentation is now localized into all 9 languages that PTC supports including English, French, German, Italian, Spanish, Japanese, Korean, and Simplified and Traditional Chinese.