

READ THIS FIRST

PTC® Mathcad® 15.0 M020

Important Installation and Usage Information

Directory of Online and CD-ROM Information

| | |
|------------------------|---|
| Platform Support | http://www.ptc.com/partners/hardware/current/support.htm |
| Mathcad Support Center | http://www.ptc.com/support/mathcad.htm |
| Knowledge Base | http://www.ptc.com/appserver/cs/search/search.jsp |
| Reference Documents | http://www.ptc.com/appserver/cs/doc/refdoc.jsp |

PTC® Introduces Mathcad 15.0 M020

PTC is pleased to present Mathcad 15.0 M020. This maintenance release builds on features introduced in Mathcad 15.0 F000. It makes adjustments for compatibility with newer versions of various PTC products, introduces a new feature, and provides a number of bug fixes. Many new features and functions are highlights of Mathcad 15.0:

Mathcad 15.0 M020 Features

Converter Support for MCDX Format

Mathcad 15.0 M020 is necessary to convert all previous Mathcad worksheets to Mathcad Prime 2.0 M010 MCDX format. To convert your worksheets to MCDX format, you must have Mathcad Prime installed.

Mathcad 15.0 F000 Features

Design of Experiments (DOE) Functions and Plot Types

With the DOE functions, you can construct design matrices, analyze and screen factors, develop statistical models, and perform Monte Carlo simulations.

The following functions were added: anova, block, boxbehnken, boxplot, boxwilson, doelabel, effects, foldover, fractalias, fractfact, fractresol, fractruns, fullfact, graphBoxplot, graphEffects, LogNormal, montecarlo, mtaguchi, multidfit, Normal, pareto, plackettburman, polyfit, polyfitc, polyfitstat, quickscreen, randomize, taguchi, Uniform, Weibull

You can now create 2D plot representations such as box plots, Pareto plots, and effect plots, which represent DOE processes.

Microsoft Excel 2007 Support

Various components that previously supported only Microsoft Excel 2003 .xls format can now handle Microsoft Excel 2007 .xlsx and .xlsm format.

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English

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Mathcad 15.0 M020

- New `READEXCEL` and `WRITEEXCEL` functions to read and write data to and from Excel 2007 file format
- New `READCSV` and `WRITECSV` functions for access to data files in comma-separated value format

New Integrated Capabilities from Mathcad Partners

Mathcad 15.0 offers integrated capabilities and access to rich engineering and analytical toolsets provided by the following strategic Mathcad partners:

- **Kornucopia®**—Offers a broad collection of functions and interactive templates specifically designed to easily and quickly blend Experimental Data, Simulation Results (FEA and others), Analytical Calculations, and Analysis Algorithms into more accurate, reusable, well documented Mathcad worksheets.
- **Truenumbers®**—Register to download and install the Truenumbers application and plug-in. They allow you to turn Mathcad numbers into Truenumbers for use in Microsoft Office or on the Web.

To access these toolsets, click the Mathcad **Tools** menu.

Installing Mathcad 15.0 M020

For the most up-to-date installation information, see the *Mathcad 15.0 Administrator's Guide*. You can find the guide in the installation CD and on the **Reference Documents** page at <http://www.ptc.com/appserver/cs/doc/refdoc.jsp>.

Coexistence with Previous Versions

If you have Mathcad 15.0 F000, Mathcad 15.0 M005, or Mathcad 15.0 M010 installed, PTC recommends that you upgrade to the latest version and not uninstall the prior one first. This method saves the user-defined settings. Previous versions of Mathcad are automatically removed from the system during the upgrade.

Mathcad 15.0 M020 cannot be installed on a workstation currently running Mathcad 14. Mathcad 14 must be uninstalled before installing Mathcad 15.0 M020. If you do not uninstall Mathcad 14, the Mathcad 15.0 M020 installation process backs-up your E-books, templates, and user-defined DLLs; removes Mathcad 14; and then installs Mathcad 15.0 M020.

You can however install Mathcad 15.0 M020 alongside any version of Mathcad Prime and Mathcad 11, 12, and 13. You do not need to uninstall these versions of Mathcad before you install Mathcad 15.0 M020, nor does installing Mathcad 15.0 M020 automatically remove these Mathcad installations.

Note: After Mathcad 14 is uninstalled, you should run a repair of Mathcad 11, 12, and 13 in that order if you have those versions installed.

Restoring Mathcad 14.0 and Mathcad 15.0 Customized Information

When you uninstall Mathcad 14.0 or Mathcad 15.0, your electronic books, user-defined DLLs, and any templates you have created are automatically backed up. To move the backed up files to the Mathcad 15.0 M020 installation directory, follow these steps:

1. **Open the folder %AppData%\Mathcad\14\Installation Backup. For example, D:\Users\jsmith\AppData\Roaming\Mathsoft\Mathcad\14\Installation Backup. Verify that it contains the following subfolders: handbook, template and userefi.**
2. **Copy all template user-created files (*.mct) and subfolders from the Installation Backup\template folder to C:\Program Files (x86)\Mathcad\Mathcad 15\template\<language>. For example, for English, the folder is EN. You must paste the files according to any corresponding subfolders.**
3. **Copy all user-defined DLLs and subfolders from the Installation Backup\userefi folder to C:\Program Files (x86)\Mathcad\Mathcad 15\userefi. You must paste the files according to any corresponding subfolders.**
4. **To restore all your previously installed handbooks:**
 - a. **Open the folder %AppData%\Mathcad\14\Installation Backup\handbook. For example, the folder D:\Users\jsmith\AppData\Roaming\Mathsoft\Mathcad\14\Installation Backup\handbook contains the ROARKS.HBK and ROARKS folder.**
 - b. **Copy all *.hbk files and the corresponding E-books subfolders under the Handbook folder to C:\Program Files (x86)\Mathcad\Mathcad 15\handbook.**

For example, the ROARKS.HBK and ROARKS subfolder under D:\Users\jsmith\AppData\Roaming\Mathsoft\Mathcad\14\Installation Backup\handbook folder must be copied to C:\Program Files\Mathcad\Mathcad 15\Handbook.

You should now be able to open your previous Mathcad E-books from **Help > E-books.**

Contact technical support if you want to point to those E-books in an alternative location.

Documentation

To access Mathcad documentation from the PTC website, you must have, or register for, a free PTC account at <http://www.ptc.com/appserver/common/account/basic.jsp>. Adobe Acrobat Reader is required to read PDF files. Download Acrobat Reader from <http://www.adobe.com/support/downloads/main.html>.

Licensing

Licensing options include commercial via a server or locked node, academic, and trial licenses.

Operating System Support

| Operating System | Version |
|--------------------------|--|
| Microsoft Windows XP x32 | Windows XP Professional SP2 and SP3 x32 Edition and Windows XP Home Edition SP2 and SP3, Internet Explorer 6.0 SP1 or later |
| Microsoft Windows XP x64 | Windows XP Professional x64 Edition SP2 and SP3, Internet Explorer 6.0 SP1 or later |
| Microsoft Windows Vista | Windows Vista Ultimate, Windows Vista Business, and Vista Enterprise, Base OS (x32 and x64 editions) and Service Pack 1, Internet Explorer 7.0 |
| Microsoft Windows 7 | Windows 7 Home Premium Edition, Windows7 Professional Edition, and Windows 7 Ultimate Edition, Base OS (x32 or x64 editions), Internet Explorer 7.0 SP1 or later |

System Requirements and Hardware Certification Information

The Mathcad installation process requires 1.75 GB hard disk space as follows:

- 350 MB on the drive to install the program
- 700 MB on the drive containing the %temp% folder
- 700 MB on the drive containing the %windir% folder

When the installation process is complete, the installer removes all data from the %temp% and %windir% temporary folders. Refer to the Technical Support Knowledge Base at <http://www.ptc.com/support/mathcad.htm> for more information.

Visit the **Platform Support** page for Mathcad 15.0 M020 for current system requirements and certified hardware configurations:

<http://www.ptc.com/partners/hardware/current/support.htm>

Interoperability

| PTC Product | Interoperability with Mathcad 15.0 M020 |
|--|---|
| Creo™ Parametric 2.0 | Asynchronously map Creo Parametric input and output parameters to associated Mathcad variables from within the Mathcad Analysis Feature interface within Creo Parametric. |
| Creo Elements/Pro™ 5.0 (formerly Pro/ENGINEER® Wildfire®) | Asynchronously map Creo Elements/Pro input and output parameters to associated Mathcad variables from within the Mathcad Analysis Feature interface within Creo Elements/Pro. |
| Windchill Workgroup Manager (Windchill PDMLink®, Pro/INTRALINK®, Windchill ProjectLink™) | Work directly from Mathcad with these products. For example, you can check in and checkout files to Windchill, and you can open and save your Windchill files from Mathcad. Maintain revisions and client-side viewables, and retain necessary file associations. |

Language Support

The Mathcad 15.0 M020 user interface, Online Help, Resource Center and documentation are localized into French, German, Italian, Spanish, Japanese, Korean, Simplified Chinese, and Traditional Chinese. Note that the Mathcad 15.0 M010 versions of the User's Guide and Getting Started Guide are still valid for Mathcad 15.0 M020. The Mathcad 15.0 M020 user interface and the *Mathcad 15.0 User's Guide* are also localized into Russian. The Online Help, Resource Center, and other documentation are not available in Russian for Mathcad 15.0 M020.

Keyboard Shortcuts

The keyboard shortcuts for each language are linked from the main table of contents for **QuickSheets** and **Tutorials**, under the **Help** menu.

Notable Fixes for Mathcad 15.0

Customer-reported issues that were fixed with the Mathcad 15.0 releases follow:

| SPR Number | Description |
|--------------------------|--|
| Mathcad 15.0 M020 | |
| 1425866 | Fixes an issue with incorrect results for the <code>invlaplace</code> transform |
| 1453863 | Fixes an issue involving the display of floating toolbars when more than one screen is involved |
| 1943125 | Fixes memory issues that occur while performing multiple recalculations of a program that reads or writes data to an external data file |
| 2008206 | Fixes an issue in which, after renaming a defined variable, Mathcad continues to treat certain later references to variables with the new name as if they were still defined |
| 2015694 | Fixes a crash when you attempt to open an e-book from a local folder where the maximum filename size is exceeded |
| 2018490 | Fixes an issue with worksheet corruption with the normal <code>find</code> function |
| 2035300 | Fixes a crash when you select and copy specific regions in a worksheet |
| 2047116 | Fixes a memory issue resulting in crash in certain copy and paste operations |
| 2048135 | Fixes an <code>Out of Memory</code> error for specific symbolic calculations |
| 2058106 | Fixes a failure to borrow a license when you install Mathcad silently |
| 2060257 | Fixes a crash when Mathcad tries to solve a specific complex equation |
| 2070478 | Fixes a memory leak issue when you manipulate RGB images |
| 2086451 | Fixes a crash that occurs while Mathcad solves a particular set of calculations symbolically |
| 2097699 | Fixes a crash when you select and copy specific regions in a worksheet |
| 2101947 | Fixes an internal error when Mathcad tries to calculate a specific worksheet |

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| 2103837 | Fixes a crash caused by the use of a particular invalid syntax (nested matrices) within a request for a symbolic solution |
| 2104207 | Fixes the calculation of A_i , B_i , DA_i , DB_i and their scaled counterparts when these functions occur in chained symbolic calculations |
| 2109282 | Fixes a problem where “partial derivative” display format for certain derivatives was lost when the worksheet was saved and reopened. |
| 2109574 | Fixes a worksheet corruption issue related to circular chain of style definitions |
| 2111700 | Updates the unhelpful error message <code>This function cannot be used here</code> with a more helpful message when you use the <code>statespace</code> function with certain improper arguments |
| 2112709 | Fixes incorrect computation of symbolic limits in certain very specific situations |
| 2118368 | Fixes an incorrect result when you are evaluating the <code>rref</code> function numerically for a specific nonsquare matrix |
| 2121711 | Fixes a problem where certain controls were missing in the interactive dialog for customizing 3D plots in Simplified Chinese |
| 2124483 | Fixes a calculation error with the <code>gcd</code> function |
| 2140151 | Addresses a compatibility issue with Windows 7 Aero-enabled themes |
| 2145756 | Fixes a problem where the <code>WRITEEXCEL</code> command hangs when writing to large files |
| 2145757 | Fixes the calculation of the <code>polyfitc</code> function so that when calculating the p-value for coefficients with negative T-values, the absolute value to the T-value is used |
| 2146795 | Fixes memory leak issues involving the <code>MathcadArrayFree</code> API available to user-defined DLLs |
| 2146985 | Fixes a file conversion issue related to memory errors |
| Mathcad 15.0 M010 | |
| 1412775 | Fixes a problem with symbolic calculation of a single line definition and evaluation combined with units |
| 1417879 | Addresses a false error message that appears when symbolically evaluating $e/n!$ from $n=1$ to infinity |

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| 1858746 | Addresses a problem with an unchanging cursor during worksheet recalculation |
| 1893304, 2056070 | Addresses a problem with a combination of an inline evaluation containing units and a symbolic evaluation that is followed by numerical evaluation |
| 1971427 | Addresses a problem with the display of the Mathcad file icon when opening a file in some languages from a CAD application |
| 1971450 | Addresses a problem with opening a file from Mathcad in some languages |
| 1990321, 1990338, 1990387, 1990725 | Addresses a problem with missing information in the setup license agreement of the Excel add-in |
| 1992079 | Fixes a problem with sending an unsaved Mathcad file |
| 1999572, 2073923 | Fixes a problem with accessing handbooks that were downloaded for Mathcad 14.0 after upgrading to Mathcad 15.0 |
| 2003017 | Resolves a problem with missing search criteria in Windows XP after installing Mathcad 15.0 |
| 2007304 | Fixes a problem with assigning data to a variable using an Excel component and an existing Excel 2007 file |
| 2013054 | Fixes a problem with <code>rref</code> function calculation |
| 2015172 | Addresses a problem of an inaccurate message about Mathcad adapters and an inaccurate tooltip |
| 2031800 | Fixes a problem with a duplicated PTC Places icon in the Open File dialog box |
| 2031831 | Fixes a problem with WRITEEXCEL function where decimal numbers are converted to strings if Windows is set to use a decimal comma |
| 2035004 | Fixes a problem with PDM actions that were missing in Mathcad |
| 2035612 | Fixes a problem with adding a row to a matrix that was pasted from Excel 2007 |
| 2045673 | Addresses a problem with missing product code text boxes in some languages in the license wizard |
| 2046815 | Addresses an installer issue for untranslated dialog boxes for some languages |

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| 2050585 | Fixes the problem with the installer deleting the user templates and DLLs while upgrading from Mathcad 15.0 F000 to Mathcad 15.0 M005 |
| 2053486 | Fixes a crash that occurs when opening Mathcad under a Windows account name with double-byte characters |
| 2055836 | Addresses a problem with unavailable controls in the Overview and Quick Tour of Mathcad tutorial specifically in the Automation Example |
| 2062986 | Fixes a problem of different results for <code>VHlookup</code> and <code>Vlookup</code> deprecated functions in Mathcad 15.0 and in Mathcad Prime 1.0 |
| 2063201 | Fixes a problem with density calculation for Chi-squared probability |
| 2067322 | Fixes incorrect results returned by the <code>eigenvals</code> function for skew symmetric matrices |
| 207393 | Addresses an issue of backing up and restoring Mathcad 14 E-books, templates, and user-defined DLLs after installing Mathcad 15 M010 |
| Mathcad 15.0 M005 | |
| 1863876, 1980262 | Addresses the problem of a Mathcad process running after exiting a Mathcad session |
| 1998193 | Fixes incorrect search results in a search of the Resource Center |
| 2012625, 2063227 | Fixes the problem of illegal Anova function calculation |
| 2014092 | Resolves a problem with opening a file containing an Excel component that cannot be loaded |
| Mathcad 15.0 F000 | |
| N/A | Resolves all reported compatibility issues with Windows 7 |
| 1401398 | Fixes the incorrect Invlaplace transform result Mathcad returns for simple rational function |
| 1406906 | Fixes a problem in automation involving setting the value of Greek letters |
| 1425866 | Fixes specific incorrect results from inverse Laplace transform. |
| 1454096 | Resolves a problem borrowing the last license from a pool of Mathcad licenses |

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| 1507803 | Fixes a specific memory leak problem |
| 1611658 | Enhances the <code>eigenvals</code> and <code>eigenvec</code> functions for handling special cases of real symmetric and Hermitian matrices |
| 1703193 | Addresses a calculation problem that occurs when parsing or displaying a cross-product equation |
| 1734123 | Extends the <code>rref</code> function to accept matrices of symbolic expressions, not just scalars |
| 1743813 | Fixes a problem related to the export of data tables containing integers and strings from Mathcad to Excel |
| 1744290 | Fixes a problem of incorrect result for symbolic definite integral involving the <code>sin</code> function |
| 1751901 | Addresses a problem of incorrect result for the definite integral of $A \cdot \sin(2 \cdot \pi \cdot t / T)$ between 0 to $T/2$ |
| 1773587 | Fixes a performance problem related to embedding a Mathcad object in an Excel file |
| 1779509 | Fixes a problem related to delete and insert elements on a matrix that is copied from Excel |
| 1779925 | Fixes a problem with Print and Print Preview in specific situations involving the Microsoft Multilingual User Interface |
| 1792234 | Corrects erroneous results when Mathcad multiplies uneven arrays by truncating the calculations |
| 1815545 | Fixes a problem with silent installations of Mathcad under the Windows Vista operating system |
| 1841454 | Resolves a problem related to saving a <code>.mcd</code> file as <code>.xmcd</code> |
| 1863876 | Corrects a situation where <code>mathcad.exe</code> continued to run after exiting |
| 1905987 | Fixes an incorrect result for a definite integral involving the <code>sin</code> function |
| 1906846 | Addresses a symbolic solve issue that causes stack overflow memory problems |
| 1939524 | Fixes a result from the inverse Laplace transform |

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