

## Enhancement Details: PTC Mathcad Prime 3.1

### **View by Product**

» [PTC Mathcad base product \(6\)](#)

### **View by Functional Area**

» [base product \(6\)](#)

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# Enhancement Details

## PTC Mathcad base product

### [Application Programming Interface \(API\)](#)

You can use PTC Mathcad Prime 3.1 to create integrations with third-party tools and to automate processes.

### [Connectivity with Third-Party Tools](#)

Use a selection of PTC written custom functions to integrate with external tools.

### [Engineering Notebook Powered by PTC Mathcad](#)

For PTC Creo Parametric 3.0 M030 and later, you can embed a PTC Mathcad worksheet directly within a PTC Creo Parametric part or assembly. Share data between the embedded PTC Mathcad worksheet and the PTC Creo Parametric model to drive geometry from PTC Mathcad to PTC Creo Parametric or to analyze PTC Creo Parametric parameters in PTC Mathcad.

### [Handling Large Sets of Data](#)

For 64-bit architectures, data set sizes are no longer limited to a 2 gigabyte (GB) ceiling.

### [Windows 8.1 Support](#)

PTC Mathcad Prime 3.1 supports the Windows 8.1 operating system.

### [Worksheet Libraries](#)

Download and use hundreds of industry-specific Mathcad worksheets.

# Enhancement Details

## base product

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# Enhancement Details

## Application Programming Interface (API)

You can use PTC Mathcad Prime 3.1 to create integrations with third-party tools and to automate processes.

### Product Information

<b>Product</b>	PTC Mathcad base product
<b>PTC Support Release</b>	Prime 3.1
<b>Product Functional Area</b>	base product
<b>User Interface Location</b>	N/A
<b>Processes, Initiatives, and Best Practices</b>	

### Benefits and Description

PTC Mathcad Prime's COM-based API is a programmatic interface to control and manipulate the contents for a running Mathcad worksheet. You can use this API to integrate Mathcad with existing engineering tools and processes. You can build applications and scripts using a variety of different tools to leverage and automate the functionality of PTC Mathcad Prime 3.1.

Using the API, you can programmatically open, activate, calculate, save and close worksheets, and get and set Mathcad parameter values, including units. Getting and setting actual expressions for the external manipulation of worksheet functions is also possible.

An events handler ties activities to specific events. Mathcad can be opened or the interaction can occur with Mathcad hidden from view.

An extensive software development kit (SDK), including source code to PTC Mathcad Prime 3.1 and SolidWorks integration, C++ class generation, and code examples, is available separately.

# Enhancement Details

## Connectivity with Third-Party Tools

Use a selection of PTC written custom functions to integrate with external tools.

### Product Information

<b>Product</b>	<a href="#">PTC Mathcad base product</a>
<b>PTC Support Release</b>	Prime 3.1
<b>Product Functional Area</b>	<a href="#">base product</a>
<b>User Interface Location</b>	Go to <a href="http://www.ptc.com/go/mathcadworksheets">www.ptc.com/go/mathcadworksheets</a> .
<b>Processes, Initiatives, and Best Practices</b>	

### Benefits and Description

With PTC Mathcad Prime 3.1 you have access to a number of custom functions and worksheets that you can use to interact with industry recognized data formats and databases. These functions include those listed below:

- HDF5 read and write—HDF5 is an industry standard file format used by many scientific applications including MATLAB.
- Prode Physical Properties—Mathcad worked with Dr. Harvey Hensley to wrap 220 Prode chemical calculations for use in PTC Mathcad. Chemical engineers can use a wide range of calculations on over 1,650 chemical compounds in the Prode database.
- Read and Write to ODBC-compliant databases—PTC Mathcad Prime 3.1 ODBC custom functions provide a way to pull data from any ODBC-compliant database into PTC Mathcad and to push data from PTC Mathcad into ODBC-compliant databases.
- STL, DXF, or IBL formats—WriteDXF and WriteSBL you can create 3D models mathematically then save them as DXF or SBL files, perfectly suited for incorporation into CAD assemblies. You can use the IBL File Generator to mathematically build sweeps and blends to use in CAD models.
- Export matrices to C++ code—You can export Mathcad content (matrices) as C++ code. The provided worksheet is set up to dynamically work for any matrix size. It exports code to a code.txt file which you can cut and paste into a C++ project.
- CoolProp's fluid properties—The PTC Mathcad Custom Function libraries are distributed with the most recent version of CoolProp (4.0.0). These custom functions are designed to wrap some of the primary CoolProp functions and make them available within PTC Mathcad worksheets.

# Enhancement Details

## Engineering Notebook Powered by PTC Mathcad

For PTC Creo Parametric 3.0 M030 and later, you can embed a PTC Mathcad worksheet directly within a PTC Creo Parametric part or assembly. Share data between the embedded PTC Mathcad worksheet and the PTC Creo Parametric model to drive geometry from PTC Mathcad to PTC Creo Parametric or to analyze PTC Creo Parametric parameters in PTC Mathcad.

### Product Information

<b>Product</b>	PTC Mathcad base product
<b>PTC Support Release</b>	Prime 3.1
<b>Product Functional Area</b>	base product
<b>User Interface Location</b>	In PTC Creo Parametric, click Applications > PTC Mathcad. In PTC Mathcad while in a math region, click the Input/Output tab and then tag regions as inputs or outputs. To update PTC Creo Parametric using PTC Mathcad data, click PTC Mathcad > Save > Save and Push. To update PTC Creo Mathcad using PTC Creo data, click Input/Output and then click Update Inputs. Use relations to relate PTC Mathcad parameters to PTC Creo Parametric dimensions.
<b>Processes, Initiatives, and Best Practices</b>	

### Benefits and Description

You can embed a single PTC Mathcad worksheet for each PTC Creo Parametric object and then open, edit, and save the worksheet within the model. Embedding worksheets with the model is more efficient than saving them separately and saves time. You can use the embedded worksheet as a scratch pad to record design notes, to solve simple to complex calculations, and as the mathematical source for parameters in the model. This makes it easier and faster to document engineering knowledge and design intent inside the model and is a powerful way to link the two together.

You can also share data between PTC Mathcad and PTC Creo Parametric using the PTC Creo Parametric parameter table. The parameters in the embedded PTC Mathcad worksheet can be tagged as inputs or outputs. These parameters then become available in the parameter table of the PTC Creo Parametric model in which the worksheet is embedded and can be used in relations in the same way as native PTC Creo Parametric parameters. You can use the embedded PTC Mathcad worksheet to derive design parameters to use in PTC Creo Parametric or to analyze dimensions from your model using PTC Mathcad's extensive array of mathematical tools.

To access the Engineering Notebook functionality you need to install PTC Mathcad Prime 3.1 and PTC Creo Parametric 3.0 M030.

# Enhancement Details

## Handling Large Sets of Data

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### Product Information

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<b>PTC Support Release</b>	Prime 3.1
<b>Product Functional Area</b>	base product
<b>User Interface Location</b>	N/A
<b>Processes, Initiatives, and Best Practices</b>	

### Benefits and Description

The 2-GB memory size limitation prevalent on Windows x86 platforms is removed on Windows x64 platforms. As a result, on 64-bit systems, you can read in much larger data sets than you could before.

# Enhancement Details

## Windows 8.1 Support

PTC Mathcad Prime 3.1 supports the Windows 8.1 operating system.

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<b>PTC Support Release</b>	Prime 3.1
<b>Product Functional Area</b>	base product
<b>User Interface Location</b>	N/A
<b>Processes, Initiatives, and Best Practices</b>	

### Benefits and Description

To make PTC Mathcad Prime 3.1 available on the most modern of computing systems, it is certified to run on the Windows 8.1 operating system. This makes use of the technology advances introduced in that operating system and of the new Microsoft .NET 4.5.1 framework.



# Enhancement Details

## Worksheet Libraries

Download and use hundreds of industry-specific Mathcad worksheets.

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<b>User Interface Location</b>	Go to <a href="http://www.ptc.com/go/mathcadworksheets">www.ptc.com/go/mathcadworksheets</a> .
<b>Processes, Initiatives, and Best Practices</b>	

### Benefits and Description

PTC has produced hundreds of worksheets that are available for download and use in PTC Mathcad Prime 3.1. These worksheets cover all engineering disciplines so you can use them as templates to drive your own worksheets or as the basis for your actual work. The examples and math included are from real world problems and are an excellent resource for solving many of your critical engineering needs.