




  
tecplot.360 2011

## **Release Notes**

*Release 2*

Tecplot, Inc.  
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2011



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Tecplot, Inc.

Post Office Box 52708

Bellevue, WA 98015-2708 U.S.A.

Tel: 1.800.763.7005 (within the U.S. or Canada), 00 1 (425)653-1200 (internationally)

email: sales@tecplot.com, support@tecplot.com

For more information, visit <http://www.tecplot.com>

Feedback on this document: [documentation@tecplot.com](mailto:documentation@tecplot.com)

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# Additional Resources

In addition to these Release Notes and HTML Help, Tecplot 360 includes access to the following online forum and eight manuals to help you explore all of Tecplot 360's functionality.

- [Getting Started Manual](#) Your introduction to Tecplot 360, including tutorials that will help you learn your way around.
- [User's Manual](#) This manual provides a complete description of working with Tecplot 360 features.
- [Scripting Guide](#) This guide provides Macro and Python command syntax and information on working with Macro and Python files and commands.
- [Quick Reference Guide](#) This guide provides syntax for zone header files, macro variables, keyboard shortcuts, and more.
- [Data Format Guide](#) This guide provides information on outputting simulator data to Tecplot 360 file format.
- [Add-on Developer's Kit - User's Manual](#) This manual provides instructions and examples for creating add-ons for Tecplot 360.
- [Add-on Developer's Kit - Reference Manual](#) This manual provides the syntax for functions included in the add-on kit.
- [Installation Guide](#) These instructions give a detailed description of how to install Tecplot 360 on your machine.
- [Tecplot Talk](#) A user-supported forum discussing Tecplot 360, Tecplot Focus, Python scripting, Add-on development, TecIO and more. Visit [www.tecplottalk.com](http://www.tecplottalk.com) for details.

# Welcome to Tecplot 360 2011 R2

Welcome to Tecplot 360 2011 Release 2! This release includes significant enhancements to performance and responsiveness, updated data file format support, and a few new features based on customer requests.

A Tecplot 360 2011 license key is required to run this release.

## What's New

- **Performance and Responsiveness Enhancements**

Loading data in the most popular formats is now significantly faster and provides better progress information, so Tecplot 360 does not seem to “lock up” when loading large files. Performance of some other common operations (including slicing, calculate-on-demand in the Analyze tools, and animation) has also been improved, and more parts of Tecplot 360 will use multiple processors when available.

- **New Linux Support**

Red Hat Enterprise Linux (RHEL) 6 and SUSE Linux Enterprise Desktop (SLED) 10 are now supported and tested platforms for Tecplot 360. (See the RHEL 6 font note under Platform-Specific Issues.)

- **CGNS Loader Enhancements**

The CGNS Loader now supports CGNS 3.1, loads Global Convergence History, line segment zones with mixed elements, HDF5 formatting,

- **PLOT3D Loader Enhancements**

The PLOT3D loader can now append solution variables to existing zones and can extract solution time from filenames.

- **FEA Loader Enhancements**

The FEA loader can now open OpenFOAM files and ANSYS 13.0 files. The Post Processing dialog is now automatically opened when appropriate instead of being a manual step.

- **Set Initial Velocity in Particle Path Calculations**

Initial particle velocity can now be specified in a particle path calculation (**Analyze > Calculate Particle Paths and Streaklines**). Previously, it was defined as either the local flow velocity or zero velocity. Click the **Particles Have Mass** checkbox and then open the Mass Options dialog.

- **Prototype Pick and Change Add-On**

A new add-on allows data to be quickly altered or blanked based on 2D or 3D geometries. This add-on is disabled by default. To enable it, put the following line in your *tecplot.add* file:

```
#!LoadAddon "tecutiltools_pickalter"
```

- **Regular Expressions in Select By Name Dialog**

Zones and variables can now be selected using regular expressions in the Tecplot 360 user interface.

- **Fourier Transform Usability Enhancements**

The Fourier Transform function can re-use existing variables rather than creating new ones each time.

- **Better Handling of Solution Time in Style Sheets**

When loading a style sheet, Tecplot 360 used to complain if the current data set did not have a time step with the solution time stored in the style sheet, and did not apply the style sheet. This limited the usefulness of style sheets to data sets which were nigh-identical to the one used to create the style sheet. Now, Tecplot 360 simply selects the time step closest to the solution time stored in the style sheet and applies the saved styles to this time step.

## What Was New in Tecplot 360 2011

Tecplot 360 2011 R2 also includes the following changes that originally made their appearance in Tecplot 360 2011 earlier this year.

- **Integration by Time Strand**

Integration can now be performed by time strands as well as by zones. This allows, for example, mass flow to be calculated and plotted at the various time steps of your data set.

- **Fourier Transform**

The Fourier transform feature (accessible through **Data>Fourier Transform**) allows you to transform one-dimensional ordered linear data into the frequency domain for visualization and further analysis.

- **Marker Gridlines**

XY and Polar line plots now offer a marker gridline in addition to the major and minor gridlines. The marker gridline can be positioned at a constant value or at the solution time. Both the Time Series plot and CFDA Integration plot now utilize this feature.

- **3D Multi-Frame Add-On**

The 3D Multi-Frame add-on makes it easier to tile frames and to get simultaneous top/front/side views of 3D frames. These functions are available from the Frame menu.

- **Loader Updates**

The CGNS loader can now load multiple files and supports versions up to 3.1. It can also load rigid grid motion data and line segment zones and now supports HDF5 file structure in addition to ADF.

The FLOW-3D loader supports FLOW-3D/MP 4.1.

The HDF5 loader has been updated to use version 1.8.5 of the HDF5 library.

The PLOT3D loader can now load multiple overset files and files larger than 2GB.

The Fluent loader is now significantly faster on many files, particularly those that contain large amounts of data that Tecplot 360 does not use.

The ABAQUS loader now supports version 6.10.

The StarCCM loader is no longer supported. Instead, simply export in Tecplot format from StarCCM.

- **New Video Export Formats**

Tecplot 360 can now export animations in Windows Media Video (WMV), MPEG-4, and Flash Video (FLV) formats.

- **Visual Improvements**

A number of new color maps are provided with Tecplot 360 2011, including diverging, sequential, and qualitative maps based on cartographic principles, as well as elevation (with or without water), Doppler, magma, hot metal, and more.

The default colors assigned to lines, symbols, and other objects in XY and Polar Line plots have been revised to improve the visibility of items that had previously been colored cyan (light blue) and yellow. These are now colored dark gray and orange, respectively.

Finally, the default symbol shape for particle paths and streaklines is more visible.

- **Integrated Solution Time Linking**

You can link the solution time between frames in the Frame Linking dialog. This capability is now a part of the core Tecplot 360 product, not an add-on.

- **Intelligent Filename Sorting**

When selecting more than one file to be opened in a multi-select dialog, the files are now sorted in an order that considers numbers in the filenames, so that e.g.

“a800.plt” is always loaded before “a1000.plt”.

Previously, load order was dependent on the order files were clicked in the dialog and was not always clear.

- **Solution Time Preserved in Viewer Files**

When exporting a Tecplot viewer file (.lpk), the solution time of the exported time step is included in the file.

- **Unicode Improvements on Linux and Mac OS X**

Library upgrades now allow more platforms, including recent Linux distributions and Mac OS X versions, to take advantage of the Unicode text support introduced in Tecplot 360 2010.

Your X Server must be using a Unicode font to see extended characters in Tecplot 360's interface controls. The `xlsfonts` shell command can be used to determine which X fonts support Unicode (fonts whose name contains “iso10646” are Unicode fonts). To have your X server automatically select a Unicode font while running Tecplot 360, edit the `fontList` line in `app-default/Tecplot130` as follows:

```
Tecplot*fontList:          -*-medium-r-*-12-*-*-*-iso10646-*
```

If your operating system does not allow you to enter Unicode text in Tecplot 360's dialogs, you may need to edit layouts or use macros to use non-ASCII text.

- **Prototype Feature Add-Ons**

Two new features, Distribution Plots and Compare XY Maps, are provided in prototype form for your feedback.

The Distribution Plots add-on produces histogram and cross plots for 3D and 2D Cartesian frames. This add-on is available from the Tools menu.

The Compare XY Maps add-on produces various types of comparison plots between line maps in XY plots, including delta, variance, average, sum, standard deviation, minimum, and maximum. This add-on is available from the Data menu.

These add-ons are not loaded by default. To activate them, remove the # symbol from the beginning of the following lines in your *tecplot.add* file:

```
##!LoadAddon "histogram"      # Distribution Plots
##!Loadaddon "companalysis"   # Compare XY Maps
```

## Remote Display

Linux and UNIX systems (including Mac OS X) can use X Windows to display Tecplot 360 on a separate system from the one on which Tecplot 360 is actually running. Your X display software must support the GLX OpenGL Extensions, or you must have the graphics rendered by the host CPU using the Mesa software renderer.

On Windows systems you must use the included Remote Desktop Connection software, which transmits the entire user interface to a remote computer. This allows the rendering to be performed in hardware on the host computer and the results transmitted across the network. Similar options are also available for Linux, UNIX, and Mac OS X systems as an alternative to X.

Remote desktop software is not suitable for situations in which multiple users need to run GUI applications such as Tecplot on the host system at the same time. In these situations, X is the preferred solution.

You may find performance better using remote desktop software instead of X. In our tests, the [HP Remote Graphics Software](#) was generally the most performant such solution when one or the other systems was Linux or UNIX-based. If both systems are Windows-based, [ThinAnywhere](#) is a plug-in that can improve the remote performance of 3D applications over slow networks.

## Graphics Drivers

For best results, please make sure that you are using the latest graphics drivers compatible with your hardware and operating system. These can be obtained from your graphics adapter vendor's Web site. Old versions may have issues with Tecplot 360, especially with larger data sets.

- **NVIDIA:** <http://www.nvidia.com/Download/index.aspx>
- **ATI:** <http://support.amd.com/us/gpudownload/Pages/index.aspx>
- **Intel:** <http://downloadcenter.intel.com/Default.aspx>

## Bug Updates

### • CFD Analyzer Bugs Fixed

The CFD Analyzer offers improved stability and correctness of results, especially on multi-processor systems. Due to these improvements, some CFD operations in Tecplot 360 2011 may yield results different from the same operations in Tecplot 360 2010 on such systems. When differences occur, the 2011 results are correct.

One class of affected calculations is those that involve velocity gradients. Mac OS X systems were likely to improperly initialize these calculations, resulting in erroneous results. A second class of errors involved the use of a non-thread-safe library in a multithreaded fashion, which could result in crashes or incorrect results on multi-processor systems in calculations involving gradients when calculate-on-demand was active.

The functions affected were X, Y, and Z vorticity, vorticity magnitude, swirl, velocity cross vorticity magnitude, helicity, relative helicity, filtered relative helicity, shock, filtered shock, pressure gradient magnitude, density gradient magnitude, X, Y, and Z

density gradient, shadowgraph, divergence of velocity, vorticity, velocity cross vorticity, and pressure gradient, density gradient, and velocity gradient.

For a list of bugs fixed in this release, visit:

[http://download.tecplot.com/360/2011r2/bugs\\_fixed.html](http://download.tecplot.com/360/2011r2/bugs_fixed.html)

For a list of current known bugs in this release, visit:

<http://download.tecplot.com/360/2011r2/bugs.html>

To receive updates about new issues discovered in Tecplot 360, subscribe to the Technical Bulletins forum on Tecplot Talk: <http://www.tecplottalk.com/>

## Platform-specific Issues

The following table outlines the support for various platform-specific features in Tecplot 360 2011.

	Linux	Mac	Windows	UNIX
FLOW3D loader	Y	N	Y	N
ABAQUS loader	N	N	Y	N
TrueType/Unicode	Y	Y	Y	N

Refer to the remainder of this section for issues specific to your operating system.

## 32-bit

On 32-bit operating systems, the address space provided to applications is limited to 2-3 GB (the exact amount depends on which operating system you use). You must use the 64-bit version of Tecplot 360 on a 64-bit OS to visualize solutions larger than this.

## Windows

Please help us make Tecplot products better by submitting an electronic report to Microsoft in the event that Tecplot 360 terminates unexpectedly. All you need to do is click the **Send Error Report** button. We review these reports regularly and they often help us find and resolve issues. To review some of the issues we've solved thanks to crash reports from users like you, visit <http://tecplottalk.com/viewforum.php?f=33>



The 32-bit version of Tecplot 360 is not supported on 64-bit Windows platforms. If you have a 64-bit version of Windows, install the 64-bit version of Tecplot 360.

- **Windows Vista™ and Windows 7 Users**

  - Installation*

  - You must have administrator rights on your computer to install Tecplot 360.

## Linux

- **Temporary Directory**

Tecplot 360 relies on being able to create temporary files in the system temporary directory. On Linux, this directory is `/usr/tmp` or `/var/tmp` by default. If this directory is not writable, you can override the default either by setting the `TMPDIR` environment variable in your profile or by setting the `TEMPFILEPATH` in the `tecplot.cfg` file.

- **Menu Shortcuts**

Menu shortcut keys will not work if the NUM LOCK is on. You may set the NUM LOCK to turn off automatically at boot in your computer's BIOS.

- **SELinux**

SELinux (provided with some Linux distributions) adds an extra layer of security. If you see this error message:

```
./bin/tecplot.shared: error while loading
shared libraries: ./lib/libtec.so: cannot
restore segment prot after reloc:
Permission Denied
```

Enter these two commands (you will need the root password):

```
sudo chcon -c -v -R -u system_u -r object_r
-t lib_t $TEC_360_2011R2/lib/

sudo chcon -t texrel_shlib_t
$TEC_360_2011R2/lib/*
```

You can then run Tecplot 360 without disabling SELinux.

- **Ubuntu®**

Tecplot 360 2011 is supported only on LTS (Long Term Support) releases of Ubuntu.

- **Red Hat Enterprise Linux 6**

RHEL 6 does not include all the X font packages needed to display the Tecplot 360 user interface correctly. As a result, text may be cut off or may otherwise be displayed incorrectly in dialogs. We recommend that the following font packages be installed:

```
xorg-x11-fonts-75dpi.noarch
xorg-x11-fonts-100dpi.noarch
xorg-x11-fonts-Type1.noarch
xorg-x11-fonts-IS08859-*
```

- **Remote Display Issues**

If you have a **Network** or **Site** license, you can run Tecplot 360 on one computer and display it on a second computer (via an X server). However, if you are running the OpenGL version of Tecplot 360, the X server must have the GLX extensions. If you are working with a large grid file remotely, try using the `-mesa` option to minimize the number of OpenGL commands sent across the network.

When displayed remotely, Tecplot 360 may exhibit substantially lower drawing speeds than when it is displayed locally, especially for text and geometries.

- **Mesa Versions**

Mesa, an OpenGL-equivalent graphics library, performs 3D rendering in software. It is typically used when hardware acceleration is unavailable or when working with remote display of large data.

The Mesa version of Tecplot 360 functions slower, especially for 3D plotting. If you must run the Mesa version and display remotely, you can speed up the rendering for XY Line and 2D plots by setting the environment variable below. On some machines, this may also improve the speed of 3D plotting that does not use translucency. (Mesa translucency performance is known to be very bad.)

```
export MESA_BACK_BUFFER=Pixmap
```

## UNIX

Tecplot 360 does not support TrueType fonts or Unicode text entry on UNIX platforms (IBM AIX, Solaris, or HP/UX).

- **IBM AIX**

Tecplot 360 2011 requires AIX Technology Level 7 or later. You must install OpenGL yourself, as this is not part of a standard AIX install.

## Mac OS X

- **Intel Support**

If you have a Mac with an Intel Core processor (rather than a Core 2 or later processor), you cannot run the 64-bit Mac version of Tecplot 360, even if *setuptec* recommends this version. Install the 32-bit version of Tecplot 360 instead.

To determine the type of processor in your Mac, choose “About This Mac” from the Apple menu. If the processor field displays “Intel Core” or “Intel Core Duo”, you have a Core processor. If it displays “Intel Xeon” or “Intel Core 2 Duo”, you can run the 64-bit version of Tecplot 360.

- **Remote Display and OpenGL Issues**

In Mac OS X 10.6, the X11 server has a known bug with native (hardware-accelerated) OpenGL applications displaying remotely using the GLX protocol. This same bug prevents Mac OS X 10.6 from running native OpenGL applications remotely and displaying locally using the GLX protocol. This problem has been duplicated with even the most basic OpenGL applications and OpenGL utilities. It has been logged with Apple as bug #6628702.

Tecplot 360 can use a Mac OS X 10.6 machine as a remote display, or as a remote server displaying to a Linux or Windows client running an X11 server, if software OpenGL drivers are used. Tecplot 360 will use software OpenGL drivers if the `-mesa` option is supplied on the command line when starting the application.

- **Off-Screen Rendering**

Due to a problem with the Mac X Server, using off-screen rendering with OpenGL on a Mac may cause exported images to be all black. This is a known bug, #4889883, in Apple’s X11 server. For this reason, we have disabled off-screen rendering as the default for

Mac installations. Image exporting and copying to the clipboard are performed using on-screen rendering instead.

Should you want to enable it (for example, for anti-aliasing and variable resolution image buffering), please add the following line to your *tecplot.cfg* file:

```
$!INTERFACE USEOFFSCREENBITMAP = YES
```

Alternatively, you can use the "-mesa" option when launching Tecplot 360 to use the software-only 3D renderer. However, you will lose the benefits of hardware acceleration.

Enjoy Tecplot 360 2011 R2 and master the view!