
Tecplot
Enjoy the View™

TECPLOT 360
2009

Release Notes

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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 functionalities.

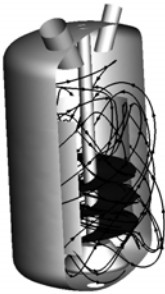
- [User's Manual](#) This manual provides a complete description of working with Tecplot 360 features.
- [Scripting Guide](#) This guide provides Macro and Python command syntax and information on working with Macro and Python files and commands.
- [Quick Reference Guide](#) This guide provides syntax 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 for details.

Welcome to Tecplot 360 2009!

Welcome to Tecplot 360 2009! This release includes many new features to enhance your workflow.

New Features in Tecplot 360 2009

- **3D Surface Clipping**



With Tecplot 360 2009, you can use slices to clip your 3D plots in up to six planes, along the X, Y, and Z axes. You can also choose whether to include zones, iso-surfaces, slices or streamtraces in the clipping.

Figure 1: 3D surface clipping enables an inside look at the cylinder included in the Internal Flow tutorial, without changing view preferences.

- **Improved Frame Management**

The active frame no longer automatically displays on top of inactive frames. You can select and make edits in any frame in your workspace without popping that frame to the top.

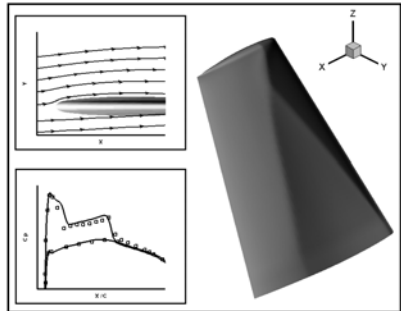


Figure 2: Multiple frames provide additional analysis of the ONERA wing included in the External Flow tutorial.

Tecplot 360 supports up to 2048 frames, and new controls offer ways to change active frames with or without changing frame order.

- **Key Frame Animation**

Tecplot 360 2009 includes key frame animation. After a user inputs a series of different views, Tecplot 360 interpolates views in between to give a 3D panning and zooming animation of your 3D plot. This animation includes transient streamtrace animation, and individual animation steps can be edited and saved.

- **Additional Export Formats**

Export Formats Compatible with Tecplot 360 2006-2008

Export options now include formats compatible with Tecplot 360 2006 R1 and Tecplot 360 2008 R1. Files exported in 2006 format can be read into Tecplot 360 versions 2006 R1 and later; files exported in 2008 format can be read into Tecplot 360 versions 2008 R1 and later.

Tecplot Viewer Export

This release includes the Tecplot Viewer export format, a format that enables you to export a Tecplot 360 3D Cartesian plot as a smaller-sized LPK file. You can reload the resulting, smaller file into Tecplot 360 for viewing and rotation. The plot will appear visually identical to the original plot, although you cannot manipulate variables or other plot elements as in the source plot.

- **Auxiliary Data Editor**

For meta-data annotation of plots, you can now add and edit auxiliary data directly in Tecplot 360 and journal the results into a saved layout file.

- **Mac OS X 10.5 Port**

The release of Tecplot 360 2009 includes support for Mac OS X 10.5 (64-bit Intel), as well as a universal installation file for Mac OS X 10.4 (32-bit).

- **Fluent Compressed File Loading**

Tecplot 360 2009 reads compressed Fluent data files (extensions *.cas.gz* or *.dat.gz*).

- **Tensor Eigensystem Analysis**

The Tensor Eigensystem add-on, a tool described in a recent [Contours article](#), has been incorporated into Tecplot 360, enabling easy access to calculation of eigenvalues and eigenvectors of a symmetric 3-by-3 tensor whose components are stored in a dataset. The calculation acts on each node in the dataset and stores the results as new dataset variables. The Tecplot 360 documentation includes a sample equation file to calculate a symmetric tensor, to help visualize a vortex core in a flow solution.

- **Reprise Licensing**

All platforms now use the Reprise License Manager for network and site license management.

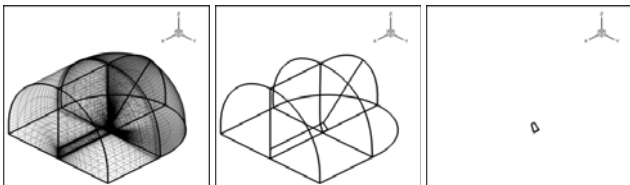
Improvements Introduced in Tecplot 360 2008

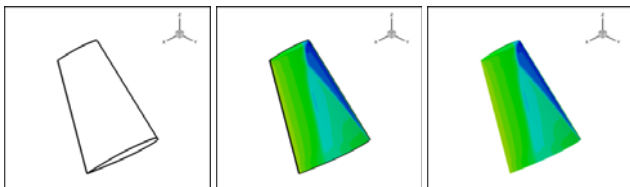
Tecplot 360 2008 introduced several new features over its two releases, including the following.

- **Modernized 3D Style Defaults**

Modernized style defaults provide substantial improvement of the first image you see when loading and viewing 3D data, so that you can enjoy the view sooner.

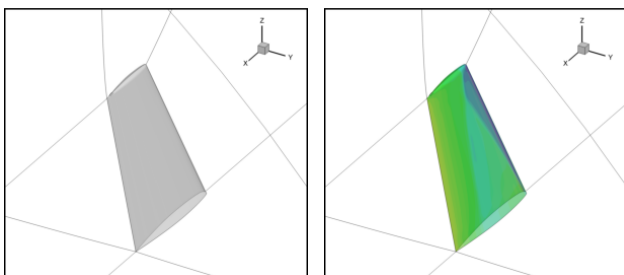
For example, a process that used to take five steps in Tecplot 360 2006...





Figures 3-8: Tecplot 360 2008 R1 process to focus on ONERA wing for analysis. The wing is included in the External Flow tutorial.

...can be accomplished with one step in Tecplot 360 2008.



Figures 9-10: Tecplot 360 2008 R2 process to focus on the ONERA wing. "Smart" defaults reduce the number of clicks needed.

Tecplot 360 accomplishes these modernized styles by adding the following:

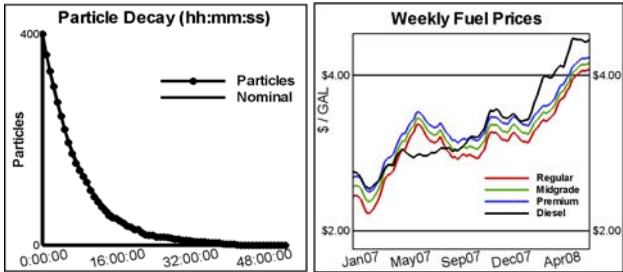
- Surfaces fit to the screen by default. The behavior of **View>Fit** (SHIFT-F) has been changed for this. To fit the entire domain, we now include a **View>Fit Everything** menu option.
- If walls are specified, those walls will display as shaded with translucency on.
- Only the edges of volume zones and non-wall surfaces are displayed. This allows you to view a contour on a surface in one click.
- Surfaces have Gouraud shading and specular highlights on by default.

- Meshes and edges now display by default as thin (1%) black lines. This improves the initial plot view by avoiding color cycling and reducing the thickness of mesh and edge lines.
- Cut planes have a slight translucency to aid in placement.

If you have feedback on our modernized style settings, we would love to hear from you. Contact us at www.tecplottalk.com, or email at j.carson@tecplot.com.

• Load and Display Time/Date Data on Axis

You can now load and display time and date data on your plot axes. Our Excel add-in¹ easily reads in data with times or dates from Microsoft® Excel® into Tecplot 360, in which you can display dates or times on a plot axis.



Figures 11-12: Graphs displaying time and date, respectively, as the independent variable.

• Zone and Map Limits Increased to 1 Billion

Zone, map, and number of variables limits are effectively removed. Machine memory usually dictates limit constraints now.

• Improved Multithreading

Tecplot 360 now supports up to 64 cores/processors.

1. `util\excel\RunTecplot5.xla`

- **Improved AVI Export**

AVI export in Tecplot 360 now supports a lossless uncompressed format, resulting in true color animations. This format runs in Microsoft PowerPoint without the use of a third-party plug-in.²

- **New Add-ons**

- The time-series plot add-on extracts a single point over time and plots the result as an XY Line Plot.
- The extract over time add-on extracts iso-surfaces, slices, streamtraces and geometries over time.
- The link time add-on synchronizes frames while animating transient data.
- The strand editor add-on edits the solution time and strand IDs of zone(s).

Bug Updates

For a list of bugs fixed in Tecplot 360 2009, visit:

http://download.tecplot.com/360/bugs_fixed.html

For a list of current bugs flagged in Tecplot 360 2009, visit:

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

Add-on Development Kit (ADK) Changes

If you use add-ons created with Tecplot 360 or Tecplot Focus version 2008 R1 or earlier, and you wish to use these add-ons with Tecplot 360 or Tecplot Focus version 2008 R2 or newer, these add-ons must be recompiled to accommodate the transition of EntIndex_t 32-bit integers. If your add-on is not recompiled, it may crash when you run it. Visit the [Tecplot Talk](#) forum for more information.

Refer to [ADK User's Manual](#) for a list of **TecUtil** functions that have been deprecated, as well as a few other ADK-specific issues.

2. For users with access to Flash[®], Flash is usually the best compromise between AVI size and quality.

Changes and Limitations

TecIO does not allow point format output. To download our current **TecIO** libraries, go to <http://www.tecplot.com/support/tecio.aspx>.

Platform-specific Issues

The following table outlines the support for various platform-specific features new in Tecplot 360 2009.

	Linux		Mac	Windows		UNIX
	x86	x86_64		32-bit	64-bit	
FLOW3D loader	Y	Y	N	Y	Y	N
ABAQUS loader	N	N	N	Y	Y	N
SciPy/NumPy^a	Y ^a	Y ^a	Y ^b	Y ^a	N ^a	N/A ^a

a. Scientific libraries used for advanced mathematical functions such as FFTs.

b. Not included on the 64-bit platform (OS 10.5)

After this release, we will no longer be including SciPy and NumPy in our releases. Please let us know if this will be an issue for you.

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

Windows Users

• All Windows Platforms

Remote Display Issues

- You can run a network license of Tecplot 360 on one Windows computer and display it on a second computer. However, if the network connection between the two computers has any latency, the dynamic text and geometries may become unusably slow.
- If you use Cygwin/X11 on a network, the server must run Tecplot 360 with the **-mesa** option to communicate with this client.

Large, Transient Datasets

- If you post-process large, transient datasets, you may run into an OS limit on the number of temporary files allowed in a directory. To fix this, exit Tecplot 360 and

restart the program. Tecplot purges the directory of temporary files upon exiting.



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™ Users

Installation

- To install on Windows Vista, you must have administrator rights on your computer to install Tecplot 360.
- If you are running a machine with Vista and up-to-date Symantec® antivirus, you must temporarily disable virus checking before installing Tecplot 360. Virus checking can be re-enabled after the Tecplot 360 installation is complete. If virus checking is not disabled before installing Tecplot 360, the installer will exit after installing Python and will not fully complete the installation.

Display

- Windows Vista users have reported OpenGL and video driver issues. If you experience strange video behavior (for example: phantom glyphs, screens that don't refresh), we recommend you follow these steps:
 - a. Choose a personalization other than Windows Aero. To do this, right-click on the desktop and choose **Personalize>Window Color and Appearance** from the context menu. Choose "Open classic appearance properties", and change the Color Scheme to either "Windows Vista Basic" or "Windows Standard". Click Apply and OK to finish.
 - b. Check with your video card vendor to see if they have an update for Windows Vista. Update your video driver.

- c. If these steps do not resolve the issue, you may want to disable hardware acceleration (although this will decrease performance speed). To do this, open your *tecplot.cfg* file and uncomment this line (by removing the “#”):

```
# $!INTERFACE OPENGLCONFIG {
    ALLOWHWACCELERATION = NO }
```

- **Windows 32-bit users**

The memory address space is 2 Gb, limiting the size of solutions you can visualize.

- **Windows 64-bit users**

- The Tecplot 360 installation for Windows 64-bit platforms does not include SciPy and NumPy Python modules.
- The 64-bit version of Tecplot 360 requires the 64-bit version of Python. If you have the 32-bit version of Python installed, you will receive an error message in your Tecplot 360 installation. Uninstall the 32-bit version of Python, and run the Tecplot 360 installation to install the 64-bit version of Python.

Linux Users

- **Temporary Directory**

Tecplot 360 relies on being able to create temporary files. On Linux, this defaults to **/usr/tmp** or **/var/tmp**. 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 can also set the NUM LOCK to turn off automatically in the machine's BIOS.

- **SELinux**

SELinux (as installed on Fedora™ 8+, SUSE® 10.3+) 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 this (as root):

```
chcon -c -v -R -u system_u -r object_r -t lib_t
$TEC_360_2009/lib/
chcon -t texrel_shlib_t $TEC_360_2009/lib/*
```

You can run Tecplot 360 without disabling SELinux.

- **Ubuntu®**

Tecplot 360 does not support Ubuntu 7.04 or 7.10. (Ubuntu 7.04 had an unstable X server. Ubuntu 7.10 included a beta package, compiz, whose defaults interfered with Tecplot menus.) Please use version 6.06LTS, 6.10, or 8.04LTS. Preliminary tests of Ubuntu 8.10 suggest this version may work as well.

- **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 improve the speed of 3D plotting.)

```
export MESA_BACK_BUFFER=Pixmap
```

UNIX Users

• Sun Solaris, HP/UX, Itanium Platforms

Because Sun Solaris and HP/UX platforms are fairly old, some new features are unavailable when working on these platforms.

The initial release of Tecplot 360 2009 will not support Itanium (Linux or HP) platforms. Please contact us if you desire to run Tecplot 360 2009 on an Itanium platform.

• IBM Platforms

Certain IBM filesets are required for Tecplot 360 to run on AIX 5.3. If you encounter an error regarding missing symbols or objects from a library when attempting to run Tecplot 360, use the [library list](http://download.tecplot.com/docs/360/ibmlibraries.html) on our download site (at <http://download.tecplot.com/docs/360/ibmlibraries.html>) to locate the missing library, and install the appropriate fileset.

Also, in order to run AIX 5.3, ensure you have installed the OpenGL package.

• Browser Configuration

Tecplot 360's HTML Help uses CSS2. If your browser does not support this, page layout or fonts may render poorly.

Macintosh Users

- **NumPy and SciPy**

The Tecplot 360 installation for Mac 64-bit platforms (OS X 10.5) does not include SciPy and NumPy Python modules.

- **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 that you do so. 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.

- **Off-Screen Rendering**

Due to a problem with the Macintosh XServer, using off-screen rendering with OpenGL on a Macintosh machine 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 Macintosh 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. However, you will lose the benefits of hardware acceleration if you choose to use mesa.

Enjoy the view!