

OMNI3D™

Graphical Post-Processing

Interpret complex CFD simulation results rapidly!

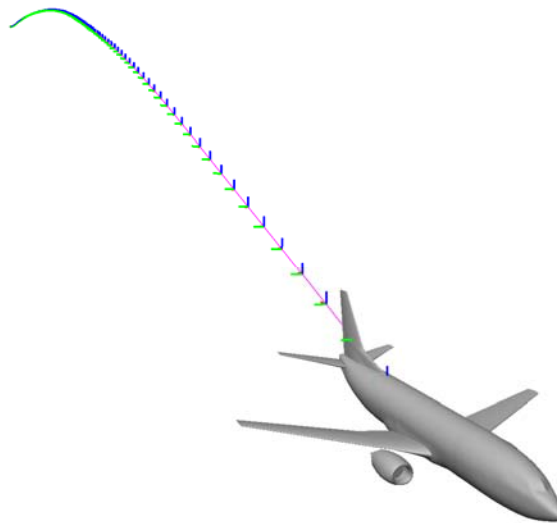
OMNI3D is a specialized tool for post-processing of AMI CFD software output, comparison with experiment and general 3D and 2D visualization. Its intuitive easy-to-learn interface provides useful information immediately, from viewing the entire model in 3D to probing the individual panels and points on the body, wakes, streamlines, off-body velocity scans, and contour lines.

OMNI3D is also a powerful 2D plotting tool for displaying parameters at arbitrary cuts through the geometry, selected panels and streamlines, as well as calculating loads for an arbitrary group of panels versus solution or time, comparison with experiment, and general line data. Individual data points and lines can be probed with the mouse.



AMI Aero, LLC
P. O. Box 40674
Bellevue, WA 98015

Propeller Wake Development



B737 Stall
Maneuver
Trajectory



Sailboat Response to Waves

OMNI3D is an interactive 3D data visualization tool designed for efficient post-processing of computational fluid dynamic simulation results.

CFD Data Input:

- Accepts data in the VSAERO plot file format, a fully general CFD output format supported by several commercial CFD codes
- Reads both formatted (ASCII) and unformatted (binary) data files from Linux, UNIX and Windows/XP workstations.

3D Displays:

- Displays body and wake geometry using high quality shading or wireframe
- Uses sophisticated color mapping to show computed fluid flow and measured experimental data on the geometry
- Displays wakes as wireframe, streamlines, cross-sections, or transparent surface
- Uses color to show wake strength along wake lines
- Displays contours of surface pressure, flow velocity, mach number, or any other property on the body or off-body velocity scans
- Provides real-time 3D view manipulation for interactive data investigation
- Animates time dependent results with changing surface geometry and several different reference frames
- Plot frame trajectories as axis system, connected points, or lightshaded ribbon
- Displays on-body and off-body streamlines, using color to show streamline and boundary layer properties
- Compare multiple geometries from different files or solutions, in 2D or 3D, with or without experimental data
- Offers mouse-based probing of geometry, streamlines, off-body velocity scans

2D Displays:

- Any solution parameter on arbitrary 2D cuts
- Solution parameters vs. time
- Streamlines and boundary layer parameters
- Planar cuts relative to specific reference frame
- Frame loads in a particular axis system
- Mouse-based zooming, probing, and cut plane manipulation
- General line plotting
- Spanwise loads
- Load summary for any selected group of panels
- Load summary vs. time or solution parameters

Comparison with Experimental Data:

- Accepts experimental data from a separate input file
- Displays experimental data defined at specific locations on the geometry in 3D
- Displays experimental data on 2D cuts
- Provides specially designed visual tools for comparing experimental data with CFD results

OMNI3D combines a point-and-click X/Motif GUI with OpenGL high performance 3D graphics. It is available on Linux and most brands of UNIX workstations.

Questions?

For more information about OMNI3D, please contact:

AMI Aero, LLC
P. O. Box 40674
Bellevue, WA 98015
Telephone: 425.643.9090
Email: info@amiaerollc.com
Website: http://www.amiaerollc.com



P. O. Box 40674 ♦ Bellevue, WA 98015 ♦ 425.643.9090 ♦ techinfo@amiaerollc.com

OMNI3D RELEASE NOTES VERSION 6.0

OMNI3D is an interactive graphics postprocessor for 3D and 2D visualization of computational fluid dynamics results. OMNI3D version 6.0 is delivered with a set of executables, image libraries, context-sensitive help files, a sample Xdefaults file, and two sample plot files.

SYSTEM REQUIREMENTS

OMNI3D uses OpenGL graphics and a Motif graphical user interface. OMNI3D version 6.0 is available on Linux operating systems. OMNI3D requires a high performance 3D graphics card with a minimum graphics resolution of 1024x768 pixels, 1280x1024 recommended. At least 512 megabytes of memory are recommended. OMNI3D requires OpenGL and Motif/X version 11.

NEW FEATURES IN OMNI3D 6.0

The following features are new for version 6.0. Most are described in more detail in the context-sensitive help files within OMNI3D.

You can now select/deselect patches in 3d for spanwise loads.

The following commands have been added or modified in OMNI3D's command script language:

Setrefmx
DrawSolnStatus

See Appendix D of the *OMNI3D User's Guide* file for a list of arguments.

CHANGES IN OMNI3D 6.0

Within OMNI3D, select **Changes** from the **Help** → menu to see a list of the changes in reverse chronological order.

Default color scale minimum and maximum calculation improved for sparse (mostly zero) data.

Display list rendering (faster) is now the default mode.

Picking algorithm has been improved to be about 30 times faster.

There is a separate toggle button for Soln/Plot (formerly part of Logo toggle).

SURF data can be rendered in Compare (solutions or plot files) mode.

Percent diff calculation has been changed.

New environment variables have been added to Create Slide Show option: OMNI3D_TMP and OMNI3D_MOVIE. Temporary directory can be changed inside the program. Omni3d prints a warning if total file size is expected to exceed 100Mb.

Option to Keep Aspect ratio has been added to Slide Show Advanced menu options.

Demo script execution can be interrupted during StepRotate and StepTranslate commands.

BUGS FIXED IN OMNI3D 6.0

The bugfixes.hlp file in the OMNI3D help directory is a text file listing the minor revisions of OMNI3D in order, and which bugs were fixed. The following is a brief list of bugs fixed in OMNI3D version 6.0.

Ident shading is now rendered correctly.

Program would appear to hang when user clicked on a large patch. This bug went away when the picking algorithm was improved.

OMNI3D now parses e-format numbers correctly in the text input window.

Vectors are now rendered correctly for plot files with unstructured patches.

Several bugs associated with comparing plot files were fixed:

- An empty message window that could not be deleted was sometimes created when a second plot file was read in.
- The 2D plot was translated and picking did not work when a second file was read in during 2D display mode.
- File summary file name now matches the data printed when more than one file is read in.

The graphics window is now refreshed in several places where needed.

Some menu panels have been resized for better readability.

Patch outlines are now rendered for unstructured patches, as long as the plot file contains edges (BGINEDGE group).

PARM data is now correctly parsed in formatted (.FMT) plot files.