Dynamic Visualizer is a powerful real-time graphics extension to Mathematica. It lets users graphically simulate systems that range from simple harmonic motion and chaotic behavior to planetary systems. Using revolutionary algorithms in software rendering, Dynamic Visualizer allows users to create three-dimensional graphics previously available only through expensive specialized software.

Using Mathematica’s MathLink® protocol, objects created in Mathematica are displayed in Dynamic Visualizer where they can be scaled, rotated, and textured. With both still and animated texture mapping available, you can map textures created in Mathematica onto objects in Dynamic Visualizer. Objects can be rendered as wire frames or as flat or smooth Gouraud shades. For even more realistic rendering, Dynamic Visualizer allows users to adjust the ambient lighting, diffuse and spectral reflectivity, and transparency of an object in real time.

For more information, visit www.wolfram.com/visualizer.

KEY BENEFITS

- Dynamic Visualizer works with all standard Mathematica graphics commands, such as ParametricPlot3D, Plot3D, and Graphics3D.
- All transformations can be programmed in Mathematica or performed interactively using Dynamic Visualizer.
- Dynamic Visualizer’s intuitive interface lets users easily modify an object’s properties, such as color or texture.
- Dynamic Visualizer documents and supports its own simple ASCii file format.
- Animations can be created and exported as QuickTime® or AVI movies.
**Dynamic Visualizer**

**Dynamic Visualizer brings high-quality three-dimensional graphics to your Mathematica projects interactively and in real time.**

### Dynamic Visualizer Features

<table>
<thead>
<tr>
<th>Object Transformations</th>
<th>Surface Rendering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Translation · Location · Rotation · Scaling</td>
<td>Point clouds · Wire frames · Flat polygons · Smooth Gouraud shaded polygons</td>
</tr>
<tr>
<td>Lighting Properties</td>
<td>Animations</td>
</tr>
<tr>
<td>Light source positioning · Ambient lighting · Diffuse and specular reflectivity · Transparency</td>
<td>Rotate · Tilt · Fly past · Corkscrew · Mathematica kernel animations · Export QuickTime and AVI movies</td>
</tr>
</tbody>
</table>

### Getting Started

**VisualizerPalettes** · ClearVisualizer · QuitVisualizer · QuitExternalApplication

**Creating Objects**

Visualize · CreateObject · Object3D · Model3D · Camera · VisualizerUniverse · DestroyObject · $LastVisualizerObject · $DefaultModel3D · ModelRange · VisualizerShow · EquivalentViewPoint

**Manipulating Objects**

SetOptions · Opacity · Specular · Ambient · Diffuse · Visible · InteractiveMovement · RenderMode · TransformationMatrix · ScaleInvariantPoint · Color · YawPitchRoll · EulerAngles · PointCloud · AxisAndAngle · Location · Wireframe · FlatShaded · SmoothShaded · LocateObject · TranslateObject · CoordinateReference · BoundingBox · EquivalentTransformationMatrix

### Creating Animations

ExportVisualizerAnimation

**Object Lists and Tests**

VisualizerObjects · VisualizerObjectQ · $SelectedVisualizerObjects

**Package Properties**

$VisualizerLink · $VisualizerVersion · $VisualizerVersionNumber

**Advanced Options**

StartVisualizer · ConnectVisualizer · LaunchVisualizer · ApplicationName · ConnectionName · $VisualizerStartUpCommand · $AutoStartVisualizer · $VerboseMessages · $StartVisualizerOptions · $VisualizerApplicationName · $PreVisualize · $VisualizerTimeout · $SystemDisplayFunction

### General Mathematica Features

Over 1900 built-in functions, including the world’s largest collection of advanced algorithms for numeric and symbolic computation, discrete mathematics, statistics, data analysis, graphics, visualization, and general programming

- Multi-paradigm symbolic programming language with support for procedural, functional, list-based, object-oriented, and symbolic programming constructs
- Automatic precision control and support for exact integers of arbitrary length, rationals, floating-point real and complex numbers, and arbitrary-precision real and complex numbers
- User-defined or automatic algorithm selection for optimal performance
- Fully programmable 2D and 3D visualization with over 50 built-in plot types
- Fully integrated piecewise functions
- High-speed numerical linear algebra with performance equal to specialized numeric libraries

High-performance optimization and linear programming functions

- Wide-ranging support for sparse matrices
- Flexible import and export of over 70 data, image, and sparse matrix formats
- Industrial-strength string manipulation
- Highly optimized binary I/O
- Built-in universal database connectivity
- Integrated web services support
- Language bindings to C, Java, .NET, and scripting languages
- MathematicaMark™ benchmarking tool
- Toolkit for creating graphical user interfaces

### Technical Requirements

*Dynamic Visualizer* requires *Mathematica* 5 or later and is available for Windows.

### Related Products

The Mathematica Applications Library is a continually expanding collection of software used in conjunction with Mathematica to quickly handle specific tasks in engineering, finance, data analysis, and many other technical areas.

Some of the software packages available are:

- Control System Professional · Advanced Numerical Methods · Wavelet Explorer · Time Series · Experimental Data Analyst · Digital Image Processing · Mechanical Systems

Find the latest products and buy online throughout the world at store.wolfram.com. Choose from over 50 technical software products, more than 200 books, Mathematica posters, T-shirts, and other items.

For more information, visit www.wolfram.com/visualizer.