

**Geo STUDIO Feature List and Version Comparison Chart**

<b>FEATURE</b>	<b>GEO FREE</b>	<b>GEO STUDIO</b>	<b>GEO STUDIO Pro</b>
<b>Application Desktop</b>			
UI Designed to minimize clutter	●	●	●
Direct manipulation interface	●	●	●
2D Scene Graph Tree View	●	●	●
Multiple Orthographic & Perspective Views	●	●	●
Color Palette & Chooser	●	●	●
Material Palette & Material Editor	●	●	●
Texture Palette	●	●	●
Node Property Editor	●	●	●
Pick mode status display	●	●	●
Hide/Show Select Buttons	●	●	●
Max 8 Textures per Surface	●	●	●
Load User Plugins	●	●	●
<b>File Input/Output</b>			
Open/Save/SaveAs in Geo Format	●	●	●
Switch between Multiple Loaded Files	●	●	●
Wavefront™ (.obj)	●	●	●
3DStudioMax™ (.3ds)	●	●	●
Recent Files List	●	●	●
Typical Image Formats (png,bmp,gif,tga etc)	●	●	●
DDS Image Format	●	●	●
Load Data Var Descriptions	●	●	●
VRML (.wrl)	●	●	●
AC3D™ (.ac)	●	●	●
X-Plane™ (.obj)*	●	●	●
SGL Image Format	●	●	●
Copy/Paste Geometry,Hierarchy & Behavior	●	●	●
Designer's Workbench™ (.dwb)	●	●	●
OpenFlight™ (.flt)	●	●	●
Aechelon™ (.hie)	●	●	●
Aechelon™ (.db)	●	●	●
Aechelon™ (.pto)	●	●	●
* Planned			
<b>Edit Operations</b>			
Undo	●	●	●
Cut/Copy/Paste	●	●	●
Delete	●	●	●
Calculate Face Normals	●	●	●
Calculate Vertex Average Normals	●	●	●
Preferences	●	●	●
Calculate Normals with Smoothing Angle	●	●	●
<b>View</b>			

Sheet1

- Hierarchy (2D Scene Graph view)
- Color Palette
- Material Palette
- Texture Palette
- Coordinate Input
- Node Property Editor
- Background Color
- Shaded Background
- Snap View
- Set Near/Far Clip Planes
- Orthographic/Perspective Toggle
- 3 Ortho Views + Perspective
- Center
- Fit Selected
- Fit Point/Edge
- Isolate Selected
- Hide Selected
- Hide Unselected
- Hide None
- Define/Toggle Visibility Group
- Solid Draw Style
- Wireframe Draw Style
- Wireframe on Move Draw Style
- Wireframe over Solid Draw Style
- DeTexture on Move Draw Style
- Proxy on Move Draw Style
- Zbuffer on/off
- Backface Removal on/off
- Texture on/off
- Lighting on/off
- Blending on/off
- Display Normals
- Display Bounding Boxes
- Display DOF's
- Visibility Along Axis



**LOD Control**

- More
- Most
- Less
- Least
- Automatic LOD switching on distance
- LOD property control



**Grid Control**

- Toggle Grid
- Snap to Grid
- Zbuffer Grid
- Draw Grid Before/After Scene
- Expand
- Shrink



Snap Grid	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Plant Grid on Polygon	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Plant Grid on Plane	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Translate Grid	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Move Grid to Origin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Center Grid	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Grid Perpendicular to Axis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Grid Dimensions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Set Viewport Grid Depth	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Selection Tools**

Group Pickmode	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Face Pickmode	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vertex Pickmode	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Text Pickmode	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
External Pickmode	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Next Sibling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Previous Sibling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Deselect All	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Parent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
First Child	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
By Property	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Info	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
All Siblings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
As Polygons	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Concave Polygons	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Non-Planar Polygons	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Polys with Coincident Vertices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Polys with Colinear Vertices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Polys with NaN Value Vertices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fence Within Selection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fence Touch Selection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
By Texture Usage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
By ID/Name	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Select by Comment Sub-String	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Scene Graph Nodes**

Group	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LOD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Switch	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sequence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Render Group	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Instance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Light Group	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Page	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
External Reference	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DCS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Clip Region	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Multi-Tex Shader	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cull Group	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Z-Offset Group	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Sheet1

Multi-Sample Anti-Alias Group	●	●	●
Line Anti-Alias Group	●	●	●
Fade Group	●	●	●
Terrain Group	●	●	●
BSP	●	●	●
Polygon	●	●	●
Mesh	●	●	●
Light Point	●	●	●
Vertex	●	●	●
Slim (light-weight) Vertex	●	●	●

**Scene Graph Operations**

Expand All	●	●	●
Collapse All	●	●	●
Re-Parent	●	●	●
Move After	●	●	●
Move Before	●	●	●
Move First	●	●	●
MoveLast	●	●	●
Select Last	●	●	●
Select First	●	●	●
Convert External	●	●	●
Convert Multi-Tex Shader	●	●	●
Decompose Mesh	●	●	●
Split Large Render Group	●	●	●
Selection Analytics	●	●	●
Insert Level	●	●	●
Delete Level	●	●	●
Un-Subface	●	●	●
Clip Region	●	●	●

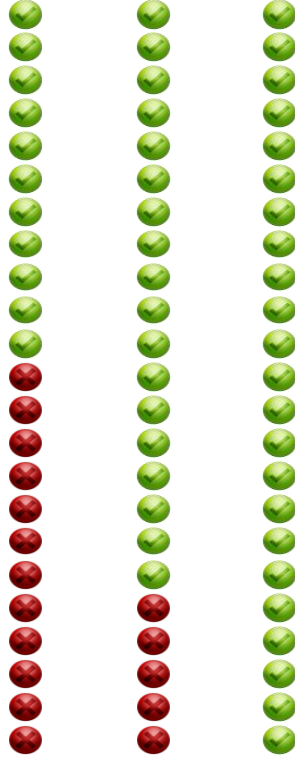
**Appearance**

Get/Put Color	●	●	●
Get/Put Material	●	●	●
Get/Put Texture	●	●	●
Remove Texture	●	●	●
3-Point Plane Mapping	●	●	●
Per-Face Mapping	●	●	●
Change Texture Paths	●	●	●
Face Color to Vertices	●	●	●
Walk UV's	●	●	●
2-Point Grid Mapping	●	●	●
Cylindrical Mapping	●	●	●
Get/Put Texture Coordinates	●	●	●
Modify UV's (Texture Space Application)	●	●	●
Compress Sparse Texture Unit Usage	●	●	●
Get/Put Texture Mapping	●	●	●

**Create Tools**

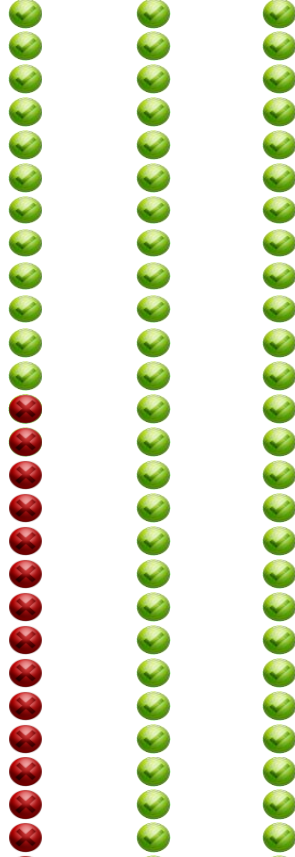
Line	●	●	●
Polygon	●	●	●

- Mesh
- Fan
- Circle
- Rectangle
- Cube
- Cone
- Cylinder
- Sphere
- Extrude
- Mirror
- Duplicate
- Strip Face
- 3-View Template
- Tube
- Surface of Revolution
- Proxy Replace
- 2D Raster Text
- 3D Vector Text
- Light Points by Mouse
- Light Point String by Number
- Light Point String by Delta
- Light Point String by Number & Delta
- Random Light Points



**Modify Tools**

- Rotate
- Translate
- Place
- Insert Vertex
- Move Vertex
- Scale
- Scale to Size
- Flip Face
- Slice
- Bevel
- Merge
- Triangulate
- Collapse Edge
- Orientation Fixer
- DWB Utils
- Subdivide\*
- Align Left
- Align Right
- Align Top
- Align Bottom
- Align Furthest
- Align Nearest
- Distribute Along Axis
- Put
- Strip Face
- Unstrip



Turn Edge	●	●	●
Vertex Convert	●	●	●
Translate Manipulator	●	●	●
Rotate Manipulator	●	●	●
Generate Prim Sets	●	●	●
Project Item	●	●	●
Project to Grid	●	●	●
Change Font Path	●	●	●
Light Point Vector	●	●	●
Change External Path	●	●	●
*Planned			

**Optimization Tools**

Calculate Bounding Boxes	●	●	●
Weld Vertices	●	●	●
Fix Degenerate Polygons	●	●	●
Flatten Nodes	●	●	●
Delete Empty Nodes	●	●	●
Create Shared Vertex Palette	●	●	●
Within-Group Polygon Texture Sorter	●	●	●
Multi-Group Polygon Texture Sorter	●	●	●
Flatten Transforms	●	●	●
Convert to/from Slim Vertices	●	●	●

**Node Property Editor**

Edit all Node Properties	●	●	●
User Comments (data block)	●	●	●
Global Attribute Changes	●	●	●
User Defined Node Extensions	●	●	●

**Material Palette**

Apply Current Material	●	●	●
Unlimited Materials	●	●	●
Add Material	●	●	●
Delete Material	●	●	●
Material Editor	●	●	●

**Color Palette**

Apply Current Color	●	●	●
True Color RGB	●	●	●
131071 Indexed Colors	●	●	●
Color Editor	●	●	●

**Texture Palette**

Apply Current Texture	●	●	●
Unlimited Textures	●	●	●
Load Textures	●	●	●
Replace Texture	●	●	●
Reload All from Directory	●	●	●
Delete	●	●	●

Delete Unused	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Delete Duplicates	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
View Actual Size	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Edit Texture Properties	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

**Helper Points**

On Average	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
On Selection Vertices	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
By Mouse	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
On Edge	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Along Vector	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Edge/Edge Intersection	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Edge/Edge Midpoint	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Line/Plane Intersection	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Point/Line Intersection	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Point/Plane Intersection	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Clear All Helper Points	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Point/Plane Intersection	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

**Helper Lines**

By Mouse	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Center Line	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Parallel	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Perpendicular	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Perpendicular to Grid	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Line/Plane Intersection	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Plane/Plane Intersection	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Clear All Helper Lines	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

**Behavior**

Apply to any Node	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Each behavior can have 1 to Many Actions	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Data Actions:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Clamp	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Range	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Arithmetic	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Conditional	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Linear	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Inverse	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Trigonometrical	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Periodic	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Truncate	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Discrete (switch statement)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
If-Then-Else (Single DataVar)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
If-Then-Else (Compound Block)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Absolute	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Sqrt	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Display Actions:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Rotate	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Translate	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Scale	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Color	●	●	●
String	●	●	●
Visibility	●	●	●
DCS (DOF's)	●	●	●
State-Machine	●	●	●
Internal Driver Variables...	●	●	●
framecount	●	●	●
tempfloat	●	●	●
current_time	●	●	●
elapsed_time	●	●	●
sin	●	●	●
cos	●	●	●
tan	●	●	●
mouse_x	●	●	●
mouse_y	●	●	●
left_mouse	●	●	●
middle_mouse	●	●	●
right_mouse	●	●	●
trigger (1 through 4)	●	●	●
User Driver Variables...	●	●	●
Any user-defined variable	●	●	●
External Driver Variables...	●	●	●
Any simulation defined var	●	●	●
Debug & Test Vars	●	●	●
Watch Vars	●	●	●
Test Individual or all Vars	●	●	●
View DOF extents & influence	●	●	●
Behavior Editor	●	●	●
State-Machine Editor	●	●	●
<b>Geo Plugin SDK</b>	●	●	●
All features in Geo are 'plugins'	●	●	●
Allows users to Create/Add their own functionality	●	●	●
C++ SDK (built with MS Visual Studio)	●	●	●
Plugin types...	●	●	●
Create Tools	●	●	●
Modify Tools	●	●	●
Helper Point Tools	●	●	●
Appearance Tools	●	●	●
Optimization Tools	●	●	●
Task Tools	●	●	●
File Format Import/Export	●	●	●
Image Format	●	●	●
New Node Types	●	●	●
Development Libraries, DLLs & Header files	●	●	●
Example source	●	●	●
<b>GeoScript Embedded Scripting Language</b>	●	●	●
Lua-based	●	●	●
90% of Plugin SDK exposed	●	●	●
Script Editor/IDE built-in	●	●	●



Sheet1

Command-line interface	●	●	●
Invoke GeoScript 1 of 5 ways...	●	●	●
Command line batch process	●	●	●
Interactive command-line	●	●	●
As a GeoScript "Plugin"	●	●	●
Within the Script Editor	●	●	●
Auto Pre/Post File Import/Export	●	●	●

