Reference Guide

Summary

These pages are provided as a reference to teach you about the software, including any terms and definitions you may need to know, where you can find each tool or feature, what each icon looks like and what they do.

For step-by-step tutorials on using Hexagon, please refer to the User Guide.

Topics

Version 2.1

General Principles and Concepts of Hexagon

- Introduction
- The Organization of the Workspace
  - User Interface Customization
  - The Custom Palette
- What is a 3D Object?
- How do you Create a 3D Model?
  - Construction
  - Editing
  - Assembly
- Hexagon on MacOS X
  - Keyboard Keys and Shortcuts
  - Navigating with the Mouse

Working in 3D Space: Navigation, Working Planes and Guides

- Introduction
- Navigation
  - Navigation by the Control Panel
  - Mouse Navigation
  - Keyboard Navigation
  - Space Mouse Support
- The Three Working Planes
  - The Absolute Working Planes
  - The Camera Working Plane
  - Specific Working Planes
- 3D Guides
• Precise Input, Relative Mode, Absolute Mode, Origins

How Tools Function in Hexagon

• Introduction
• Structure
• Operation Sequence
• Options and Accessories
• Parameters
• Indication of the Tool in Use

3D Manipulators

• Introduction
• The 3D Manipulator
  ▪ Translation
  ▪ Rotation
  ▪ Scale
  ▪ Universal
• 3D Manipulator Accessories
  ▪ Selection
  ▪ Working Planes and 3D Manipulators
  ▪ Hide/Show
  ▪ Delete
  ▪ Dissolve
  ▪ Copy From the Manipulator
  ▪ Displaying the Universal Manipulator Components
• Advanced Options for the Manipulator
  ▪ Set the Pivot
  ▪ Reset the Pivot

Selections

• Introduction
• General
  ▪ Types of Selections
  ▪ Select Auto
  ▪ Soft Selection
  ▪ Selection Memorization
• Selection Methods
  ▪ Paint
  ▪ Drag
  ▪ Rectangle Lasso
  ▪ Polygon Lasso
• Selection Operations
• Selection Accessories
  ○ Loop
  ○ Ring
  ○ Select Between
  ○ One Over N for Loop, Ring and Select Between
  ○ Grow
  ○ Shrink
  ○ Boundary
  ○ Convert
  ○ One Over N
  ○ Invert
  ○ Unselect All
• Selection Extensions
  ○ Extend Selection
  ○ Reset Selection
  ○ Set Selection Auto Mode
  ○ Selection by Topology
• Hide/Show Selected Faces
• Isolate Selection

Dynamic Geometry in Hexagon

• Introduction
• Modes
• Dynamic Geometry Tree
• Controlling the Dynamic Geometry Levels
  ○ Global Control
  ○ Collapsing the Dynamic Geometry
  ○ Removing the Last Dynamic Operation

Modeling With Symmetry

• Introduction
• The Symmetry Mode and the Symmetry Tool
  ○ The Symmetry Mode
  ○ The Symmetry Tool and the Clone Function
• Pros and Cons

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• Cube
• Sphere
• Facet
• Cone
• Cylinder
• Platonic Shapes
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- Edge Tools
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  - Extract Along
  - Fillet
- Fast Extrude
- Move Along
- Symmetry
- Tesselate
  - Free Tesselate
  - Tesselate by Segment
  - Add a Single Vertex on an Edge of a Polygon
  - Tesselate by Slice
  - Automatic Tessellation
- Connect
- Smooth More/Less
- Close
- Weld Objects
- Weld Points
- Average Weld
- Target Weld
- Sweep Surface & Extrude Surface
- Tweak
- Extract
- Bridge
- Dissociate

Lines

- Introduction
- Rectangle
- Square
- Circle
  - Circle From the Center
  - Circle From the Basis
  - Circle From the Diameter
  - Circle From Three Points
- Arc
  - Center, Start/Radius, Angle
  - Start, Center/Radius, Angle
  - Start, End, Middle
○ Start, End, Center/Radius
○ Start, End, Tangent

- Polyline
- Bézier
- Interpolated Curve
- Curve
- Composite Curves
- 2D Text
- Helix
- 2D Symmetry
- Curve Extraction
- Curve Offset
- Insert Points
- Polyline Tessellation
- Close
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**Surface Modeling**

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- Ruled Surface
- Double Sweep
- Coons Surface
- Gordon Surfaces
- Extrude Line
- Sweep Line
- Boolean Operations
- Thickness
- Offset
- Smoothing
- Chamfer
- Weld Objects

**Utilities**

- Introduction
- Stretch
- Lay On
- Snap/Align
- Taper, Bender and Twister
- Deformer (NFFD)
- Bend
- Copy
- Multiple Copies
- Copy on a Support
- Cut Into Slices
- Hide
- Show
- Group
- Ungroup
- Decimate
- Extract the Openings
- Triangulate Non-Planar Facets
- Triangulate N-Gons
- Merge Duplicated Points
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- Definition
- Materials Palette
- Materials Management
  - Creating a New Material
  - Operations on Materials
- Shading Domains
  - Creating a Shading Domain on a Selection of Faces
  - Operations on Domains

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- Texture Mapping
  - Using the Gizmos
  - The Gizmo Editor
  - The Gizmo UV Stretch
- The UV Editor
  - Interface
  - Selection and Manipulators
  - Tools For Working With UVs
  - Options and Utilities
- Unfold
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  - Unfolding UVs
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Surface Displacement Modeling

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- Concepts
  - Structure, Mesh Density and Smoothing
  - From the Rough Shape to the Detailed One
True or Fake Modeling?
- Preparing the 3D Model Before Displacement Modeling
- Multi-Resolution Smoothing

- Communication With Other 3D Tools
  - Exporting Geometry
  - Displacement Texture Export
  - Bump Map Texture Export
  - Bump Map and Displacement Texture Export

**Brushes and Painting**

- Introduction
- Principles of the Displacement and Painting Tools
  - The Working Channels
  - Revealing Textures to Paint or to Displace
  - Brush Shapes
  - Load Your Own Brushes or Textures to Reveal
  - Brushes Display
  - Types of Strokes
  - Working with the Graphic Tablet
  - Working with Symmetry
- Using Displacement and Painting Tools
  - Displacement Brush
  - Soften
  - Pinch
  - Inflate
  - Paint
  - Brush
- Exporting Textures
  - Color and Transparency Textures
  - Bump Textures
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**The Control Panel**

- Introduction
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- Organization of the 3D Workspace: Split Views
- Snapping and Axis Constraints: 3D Guides
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- 3D Navigation Tools
- 3D Drawing Styles
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  - Light Maps
  - Real-Time Shadows
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The Scene Properties Palette

- Introduction
- The Scene Tree Tab
- The Scene Properties Tab

The Object Properties Palette

- Introduction
- Object Properties

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- Interface Preferences
  - General
  - Grids
  - 3D Rulers
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- Display Preferences
  - Entities Display
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  - .STL Format
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  - .AI Format

Keyboard Shortcuts

- Keyboard Shortcuts