



### Select a 3D Gallery

- 1 To select a new gallery, click the left-mouse button on the Galleries Drop-down Arrow.
- 2 Drag down the list to highlight the desired gallery name.
- 3 Select the desired gallery by clicking the left-mouse button.

The selected gallery will be displayed in your Gallery View until you select another 3D gallery.

[Windows](#)

### Select a 3D Gallery Object

- 1 Select any 3D gallery in the Gallery Window.
- 2 Point to an object in the selected 3D gallery.
- 3 Click and hold the button to select it.
- 4 Drag it to the Design Window and release the mouse button.

**Tip:**

At the bottom of the Gallery Window in the Preview Area, you see a 3D representation of the highlighted object. Click the Rotate buttons at the bottom of the Preview Area to rotate the highlighted object in 3D.

[Gallery Window](#)

[Windows](#)

### **Use a Basic 3D Gallery Object**

- 1 Point to an object in the Basic shapes 3D Gallery and click to select it.  
You see a 3D representation of the highlighted object.
- 2 Click on the Rotate buttons at the bottom of the Preview Area to rotate the highlighted object in 3D.
- 3 To move the selected gallery object to the Design Window, drag it from the Gallery View to the Design Window.
- 4 Position the object, and then release the mouse button.  
A two-dimensional object outline appears in the Design Window where you released the mouse button, and a 3D object appears in the Walk Window.

[Gallery Window](#)

## **Move an Object**

- 1 With the Select Object Tool, choose the object.
- 2 Move the object by clicking on it and holding the mouse button down while dragging.

Note: Clicking on and/or dragging an object's sides or handles might result in modifications to the object. To move an object, make sure you click on the body of the object, not a handle or a side.

[Design Window Tools Pad](#)

## Select an Object

Before you can edit an object, you must select it. A selected object changes color and shows small squares at its corners. You can select an object in the Design Window or in the Walk Window.

### IN THE DESIGN WINDOW

- 1 Click the Select Object Tool in the Tools Pad.
- 2 Point to the object that you want to select.
- 3 Click.

### IN THE WALK WINDOW

- 1 Click the Select Object Button in the bottom of the Walk Window.
- 2 Point to the object in the Walk Window that you want to select.
- 3 Click.
- 4 The selected object appears in the center of the Design Window and is selected.

[Design Window Tools Pad](#)

## **Group Objects**

- 1 Select multiple objects with the Select Object Tool by holding the shift key and selecting multiple objects.
- 2 Under the Design menu, select Group.

[Design Menu](#)

## Lock an Object

- 1 Select Lock Object Tool.
- 2 Click the object that you want to lock.
- 3 The object cannot be selected or edited in any way until it is unlocked with the Unlock All option from the Edit menu or with the unlock tool.

[Design Window Tools Pad](#)

[Surface Editor Tools Pad](#)

## Unlock an Object

- 1 Select the Lock Object Tool.
- 2 While holding the Ctrl key down, click the object you want to unlock.

**Tip:**

Hold the Ctrl key down while using the lock tool on a locked object and the object is unlocked.

[Design Window Tools Pad](#)

[Surface Editor Tools Pad](#)

### **Add a Handle to an Object**

- 1 Select Add/Remove Handle Tool which is one of the tools in the Tools Pad.
- 2 Point to the segment of the outline in the Design Window where you want to add the new handle.
- 3 Click on the segment.  
Depending on the speed of your machine, there may be a brief pause before the handle appears.
- 4 If a handle does not appear, select Add/Remove Handle Tool, point to the location on the outline where you want the new handle, click, and drag the surface slightly outward.

Note: You cannot create non-convex shapes with this tool. You will always be adding a handle outside the bounds of the two handles you are in between.

[Design Window Tools Pad](#)

## Remove an Existing Handle

- 1 Select Add/Remove Handle Tool.
- 2 Point to the handle.
- 3 Click.

Depending on the complexity of the object or surface feature and the speed of your machine, there may be a brief pause before the handle disappears.

### Tip:

- If your goal is to create an irregular object or surface feature, you might want to try the Create Irregular Object Tool instead of the Add/Remove Handle Tool. Both tools can accomplish the same result, but you may prefer one method over the other.
- You can reposition a new handle when you add it by dragging instead of clicking.

[Design Window Tools Pad](#)

## Resize an Object



- 1 To resize an object, point to an object handle with the Select Object Tool.
- 2 Drag the handle.

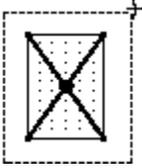
### Tip:

- n If an object is grouped, the Select Object Tool cannot be used to reshape the grouped object. The grouped object must be ungrouped (with the Ungroup command under the Design menu) before the Select Object Tool can reshape the pieces.
- n Depending on what dimensions you are viewing in the Design Window (Top, Front, or Right), the reshaping capability of the Select Object Tool may be limited. Object handles indicate to what extent an object can be reshaped.
- n When you drag a handle, an object maintains its type. For example, if you drag the handle of a rectangular object, the object remains rectangular. If you drag a handle of an octagon, the object remains an octagon. This is true for regular-shaped objects; however, handles of irregular-shaped objects move individually.
- n If you hold down the Ctrl key while dragging a handle of a regular-shaped object, the object becomes irregular.
- n You can also drag a line between two handles for certain handle types, depending on the type of handles.

[Design Window Tools Pad](#)

[Surface Editor Tools Pad](#)

## Resize an Object About Its Center

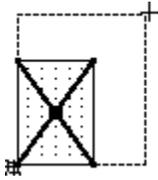


- 1 Select the object to be resized.
- 2 Select Resize Object Tool.
- 3 Point to a reference point (such as a corner).  
Drag the object to its new size.

[Design Window Tools Pad](#)

[Surface Editor Tools Pad](#)

## Resize an Object About a Specified Anchor Point



- 1 Select the object to be scaled.
- 2 Select Resize Object Tool.
- 3 Point to the desired location at the anchor point.
- 4 Hold down the Ctrl key and click to establish the new anchor point.
- 5 Point to a reference point and drag to a size.

### Tip:

- You can resize objects independently along the three coordinate axes (dimensions).
- When an object is resized, its contents and any surface features are resized proportionally. If this is not what you want, use the Select Object Tool to reshape the object.
- To resize an object uniformly along all three dimensions (X, Y, Z), hold down the Shift key before dragging.
- If you add a surface feature to an object and then resize the object, the surface feature is automatically resized to match the new scale of the object.

[Design Window Tools Pad](#)

[Surface Editor Tools Pad](#)

## Skew an Object

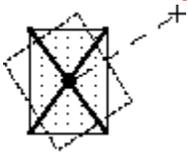
- 1 Select the object you want to skew.
- 2 Select Skew Object Tool.
- 3 Point inside the object outline.
- 4 Click.
- 5 Drag in the direction(s) you want to skew.

### Tip:

You can use the Skew Object Tool to skew on more than one axis but only from the view in which the object was created.

[Design Window Tools Pad](#)

## Rotate an Object



- 1 Select the object that you want to rotate.
- 2 Select Rotate Object Tool.
- 3 Point to any location in the Design Window to establish the center of rotation.
- 4 Click.
- 5 Drag the pointer away from the center of rotation.  
A dotted line appears between the pointer and the center of rotation.

### Tip:

- As you drag the pointer farther from the center of rotation, you gain finer control over the angle of rotation. Drag the pointer in an arc around the center point to rotate the object.
- Contained objects are rotated with the container unless you hold down the Ctrl key when you rotate an object. Holding the Ctrl key rotates the container but not the contained objects.

[Design Window Tools Pad](#)

[Surface Editor Tools Pad](#)

## Connect Two Objects

- 1 Select an object with the Select Object Tool and align the object next to the object you need to connect it to.
- 2 Select the Connect Surfaces Tool from the Tools Pad.
- 3 Where the two object meet, click the Connect Surfaces Tool.  
The two objects are now connected.

### Tip:

- Another technique is to select the side you want to connect with the Connect Surfaces Tool. With the tool, drag the side to the wall you want to connect to.
- You can verify that the two objects are connected by using the Observer (round circle). Place the Observer inside one of the objects and move it through the opening between the two objects. As the Observer approaches the opening, you should be able to see into the adjacent object if the connection is made properly.

[Design Window Tools Pad](#)

## **Cut a Hole in an Object Surface**

- 1 Select the Surface Editor Tool.  
On the object in the Design Window, click on the surface you want to edit.
- 2 The Surface Editor appears and the Basic 2-D Gallery replaces the existing 3D gallery in the Gallery Window.
- 3 Select a two-dimensional object from the Basic 2-D Gallery and drag it onto the surface, or select the Create Rectangular Object Tool and draw it.  
To close the Surface Editor, select the Return Button on the Tools Pad.

[Design Window Tools Pad](#)

[Surface Editor Tools Pad](#)

## Select an Object Surface in the Design Window

- 1 Select Surface Editor Tool.
- 2 Click on the surface that you want to select.

[Design Window Tools Pad](#)

[Surface Editor Tools Pad](#)

### Select an Object Surface in the Walk Window

- 1 Choose the 3D Select Surface Button.
- 2 Point to the 3D Surface in the Walk Window.
- 3 Click.

The selected surface is displayed in the Design Window and is aligned planar to your view.

**Tip:**

When the surface is displayed, you will notice that the title bar of the window has changed and the Tools Pads has also changed. This set of tools and windows is called the Surface Editor.

[Walk Mode Navigation Buttons](#)

### **View a Selected Object in the Walk Window**

- 1 Select the galleries drop-down arrow at the upper-right corner of the Gallery Window. A list of 3-D galleries will appear.
- 2 Select Rooms-Castle 3-D Gallery.
- 3 Select Slope 100 object and drag to the Design Window.
- 4 The Slope 100 object you dropped into the Design Window is now visible in the Walk Window by using the Navigation buttons.

[Navigate](#)

[Select a 3D Gallery](#)

[Navigation Buttons](#)

## Modify the Opacity of a Surface

- 1 Select the surface.
- 2 Choose an opacity type in Tools Pad (Make Opaque or Make Transparent).
- 3 Click on the object.

### Tip:

You can also modify an object's opacity by selecting the object and double-clicking the Opacity Modifier in the Tools Pad.

[Surface Editor Tools Pad](#)

## Select Texture Galleries

- 1 Click on the Textures tab.
- 2 Click on the Preview Area drop-down to display a pop-up menu for adding textures. Select Add Textures.
- 3 A Select textures drop-down list provides a gallery of textures (the textures in the Virtus .wad file).
- 4 Select the texture you want to add.
- 5 Click OK.

Warning: There is a limit on the number of textures you can load at once. The limit depends on the amount of RAM and free swap space you have available.

### Tip:

To select more than one texture:

- Hold down the Shift or the Ctrl key.
- Select the other textures you want.
- Click OK.  
The textures are added to your Texture View.

[Windows](#)

## Add Textures to Objects

There are three methods to add textures to objects:

### METHOD ONE

- 1 Select a texture from the Texture Window.
- 2 You see a close-up view of the highlighted texture in the Preview Area.
- 3 Drag the texture from the Textures Window onto a two-dimensional surface in the Design Window. The texture appears on the 3D object in the Walk Window.

#### **Tip:**

You can also drop textures onto a 3D object's surfaces in the Walk Window.

### METHOD TWO

- 1 Select the texture.
- 2 Select Auto Texture Tool in the Walk Window.
- 3 In the Walk Window, click on the surface where you want to place the texture.

### METHOD THREE

- 1 Select an object.
- 2 Double-click on the texture you want to use on the selected object.

[Windows](#)

[Navigation Buttons](#)

## Create Your Own Custom Objects

- 1 Model the object in the Design Window.
- 2 Right-click on the object after the customization.
- 3 In the Hexen 2 Object Properties dialog, select Object Tab.
- 4 Select Custom from the Class drop-down menu and fill in the name of the object in the Name text box.

### Tip:

To save the new custom object, you can drag it into the gallery.

[Hexen II Object Properties Dialog](#)

## Scaling Objects

See Resizing objects.

[Resize an Object](#)

## Dragging & Dropping Textures

There are three methods to add textures to objects:

### METHOD ONE

1. Select a texture from the Texture Window.
2. You see a close-up view of the highlighted texture in the Preview Area.
3. Drag the texture from the Textures Window onto a two-dimensional surface in the Design Window.
4. The texture appears on the 3D object in the Walk Window.

### Tip:

You can also drop textures onto a 3D object in the Walk Window.

### METHOD TWO

1. Select the texture.
2. Select Auto Texture Tool in the Walk Window.
3. In the Walk Window, click on the surface where you want to place the texture.

### METHOD THREE

1. Select an object.
2. Double-click on the texture you want to use on the selected object.

[Add Textures to Objects](#)

## **Create and Open Maps**

- 1 To create a new map, choose New (Ctrl+N) under the File menu.
- 2 Hexmaker will be displayed on the monitor with a blank Design Window (except for the Observer) and Walk Windows. A new map can now be created by the user.
- 3 To open an existing map, choose Open (Ctrl+O) under the File menu.
- 4 Use the Open dialog to select the Hexmaker map that you wish to edit by double clicking on that map.

## [File Menu](#)

## **Activate a Window**

Activating a window means that you can select objects and press buttons for that window. You make a window active by clicking anywhere in or on it. An active window displays a highlighted title bar. If a window is not active, its buttons and tools are shaded and are not able to be selected. If the Design Window is not active, the Design Window Tools Pad is not visible.

[Windows](#)

[Design Window Tools Pad](#)

## Navigate

You can walk around in your Hexmaker level using one of two methods:

### METHOD ONE: BUTTON NAVIGATION

The navigation buttons are always active when the Walk Window is active. Click on one of the navigation buttons to move in that direction.

#### Tip:

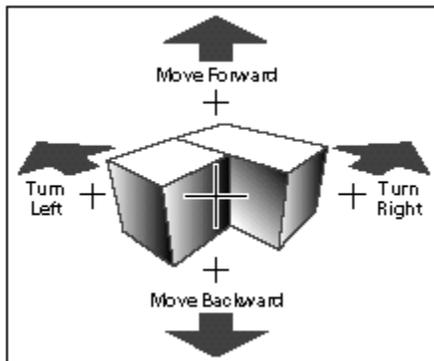
If you hold down the mouse button while pointing to a navigation button, you move continuously.

### METHOD TWO: CURSOR NAVIGATION

Besides the navigation buttons, you can also use the cursor to navigate in the Walk Window. You can choose normal mode navigation or advanced mode navigation. Movement of the mouse pointer is relative to the cross hair in the center of the Walk Window.

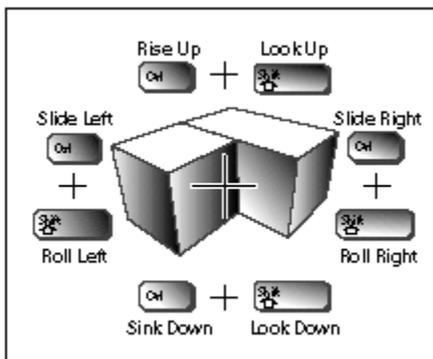
#### Normal Mode Navigation

For normal mode navigation, position the pointer above the cross hair. This enables forward movement, below enables backward movement, etc. The left mouse button is pressed to begin movement and released to stop it. The further the cursor is positioned away from the cross hair, the faster the walk speed. Direction is determined by the position of the pointer relative to the cross hair (above, below, left, right, etc.).



#### Advanced Mode Navigation

For advanced mode navigation, use a combination of the Shift key or the Ctrl key and the mouse. Movements like tilting your head, sliding from side to side, or increasing and decreasing your altitude are also possible. These keyboard combinations for navigation modes are illustrated at the right.



[Navigation Buttons](#)

[Novice Navigation Buttons](#)

[Walk Mode Buttons](#)

## **Move the Observer**

- 1 Click the Select Object Tool in the Tools Pad.
- 2 Point to the center of the Observer.
- 3 Click on and drag the Observer to the lower left corner of the Top View. The Observer follows the cursor as you move the mouse, allowing you to reposition the Observer manually.

[Navigate](#)

[Navigation Buttons](#)

### **Change Observer Line of Sight**

- 1 Point to the center of the Observer.
- 2 Hold down the Ctrl key.
- 3 Click and drag to the right of the Observer.
- 4 Release the mouse button and the Ctrl key.

The black line in the middle of the Observer represents which way you are looking — your line of sight in the level.

[Move the Observer](#)

[Navigation Buttons](#)

## **Cut, Copy, Paste**

1. To cut or copy an object from the Design View, first select the object to be cut or copied.
2. From the Edit menu, select *Cut* (Ctrl-X) to cut the object or select *Copy* (Ctrl-C) to copy the object.
3. The object is now stored on the clipboard.
4. To paste the object, select the point in the Design View where you want to place the object.
5. From the Edit menu, select *Paste* (Ctrl-V).  
The object may be pasted multiple times.

## Edit Menu

### **Add a New Layer**

- 1 Under the Design menu, choose New Layer.
- 2 The Layer Name dialog will appear.
- 3 Enter the name of the new layer and then click OK.  
Notice that the new layer name is now displayed in the Layer List.

[Design Menu](#)

### **Coloring Layers**

- 1 Under the Window menu, select Layers.
- 2 Right-click on the layer that you want to color in the layer list.
- 3 Select Change Color in the drop-down menu.
- 4 The color palette will be displayed.
- 5 Select the desired color for your layer and then click OK.
- 6 The layer will now be that color.

### [Window Menu](#)

## Hiding Layers

- 1 Under the Window menu, select Layers
- 2 Right-click on the layer that you want to hide in the layer list.
- 3 Select Hide in the drop-down menu.
- 4 The layer will now be invisible.  
Repeat steps 2 and 3 to make the layer visible again.

[Window Menu](#)

### **Locking Layers**

- 1 Under the Window menu, select Layers
- 2 Right-click on the layer that you want to lock in the layer list.
- 3 Select Lock in the drop-down menu.
- 4 The layer will now be locked. It can no longer be selected or edited in any way until it is unlocked.  
Repeat steps 2 and 3 to render the object again.

[Window Menu](#)

## Rendering Layers

- 1 Under the Window menu, select Layers.
- 2 Right-click on the layer that you want to stop rendering.
- 3 Select Render from the drop-down menu.  
The layer will no longer be visible in the Walk Window.  
This technique is used to speed up rendering and navigation.
- 4 Repeat steps 2 and 3 to render the layer again.

[Window Menu](#)

### **Move an Object to a New Layer**

- 1 Select the objects you want to layer.
- 2 Double-click the name of the layer you want to add the object to in the Layer List. A dialog will be displayed for you to verify the move.
- 3 Click OK.

[Add a New Layer](#)

### **Hiding Layers in the Design View**

1. In the Window menu, make sure the Layers window is checked.
2. In the Layers window, right click on the layer to be hidden.
3. Click on *Hide* with the left mouse button.

[Window Menu](#)

## **Tumbling Objects**

1. Select the tumble editor tool from the design view tools window.
2. Click on the object you wish to tumble in the design view.
3. Select the Move View tool from the tumble editor tool pad.
4. Drag the mouse to rotate the object in 3D space.

[Design Window Tools Pad](#)

## **Slicing Objects**

1. Select the Tumble Editor Tool from the Design View tools pad.
2. Click on the object you wish to slice in the Design View.
3. Select the Slice Tool from the Tumble Editor Tool pad.
4. Click and hold the left mouse button on a point outside of the object.
5. Drag the mouse through the object.
6. Release the mouse button.

### **Deleting Slices**

To delete a slice from the Slice List, choose the slice and press the Delete key.

### **Reversing Slices**

To remove the other side of the slice you just made, select Reverse Slice from the Slice List.

## **Add Objects to a Gallery**

You can add to a gallery by dragging objects you created from the Design Window into the gallery.

- 1 Open the gallery in which you want to place the object.
- 2 Create an object or set of objects in the Design Window.
- 3 Drag the objects into the gallery.
- 4 Enter its name in the Save Object As dialog.
- 5 Click OK.

[Select a 3D Gallery](#)

[Select a 3D Gallery Object](#)

[Use a Basic 3D Gallery Object](#)

## World Properties

1. Under the File menu, select Game Options.
2. The Game Options dialog will appear.

The Game Options dialog contains various options that can be changed to make creating your levels easier and enhancing the customization.

The Hexen II Load Options has two items: Class and Skill. Class has four types of characters that the Hexen II player can be — ranging from a Paladin to an Assassin. The Skill category has selections for four skill levels for a player depending upon which class of character was selected. If you choose to load Hexen II using the Hexen Export command, the Class and Skill Level selections that you have made here will be part of the exported information.

The Level Options set how the level appears and sounds when you run it in Hexen II. The level title is the title that appears on the screen when it is loaded. The World Type determines what era of civilization the player, characters, and objects are from in the level. The MIDI and CD Track tell Hexen II what music to play if the user chooses to listen to music while playing.

The Game Options are here to allow you to customize the actual Hexen II pieces that are used. The Wad Name file name is the default file that is used when you load textures into Hexmaker. We allow only one texture file per level. If you change the file in the middle, some textures may not show up when you export to Hexen II. There are utilities out on the net to add textures into a .wad file. This means that all of the textures you want can be in the same file.

Game Name is the actual program file that executes when you launch Hexen II from Hexmaker. You may want to change this to play the GL version of Hexen II or a new version that is released later.

The Strings.txt file is the file where all of the strings used as messages are written so that Hexen II can use them. Be very careful with this file as it is an integral part of Hexen II. We append message strings to the end of this file if you enter a new message that Hexen II does not yet have available to it. We also write out a .txt file with the same name as your .map file that has all of the strings in it as well as the indexes into the strings.txt file. This is for later use by you as a means of passing your levels around on the net. Please make sure you understand the workings of the strings.txt file before you change it. It can affect how the Hexen II levels that came with the program play.

File Menu

## View the Hexen II Object Properties Dialog

Right-click on the object in the Design Window.

The Object tab in the Hexen 2 Object Properties dialog is used to set a specific item's properties. The Attributes tab allows you to set the properties of an object so that it behaves the way you want it to in Hexen II.

The properties fall into several general groups:

Class: This is a list of the Hexen II objects that you can use to create your level.

Attributes: In this area, the modifiable attributes for the class you have chosen will be listed.

Flags: These are settings that can be turned on or off to affect the behavior of an item.

Levels: These checked boxes determine the skill level where this item is available in Hexen II.

The Advanced tab has settings that affect Geometry and Custom items.

Geometry: Object can be solid or hollow.

Contains: A list of items certain class objects can hold. These items show up when the object is killed or destroyed.

Custom Object has Geometry: Allows custom objects to get exported with their geometry.

[Select an Object](#)

## **Save Your File**

- 1 From the File menu, select Save (Ctrl+S) or Save As ... .  
If Save As was selected, the Save As... dialog appears.
- 2 In the File name box which is highlighted, enter a name for the file.
- 3 Click on Save.

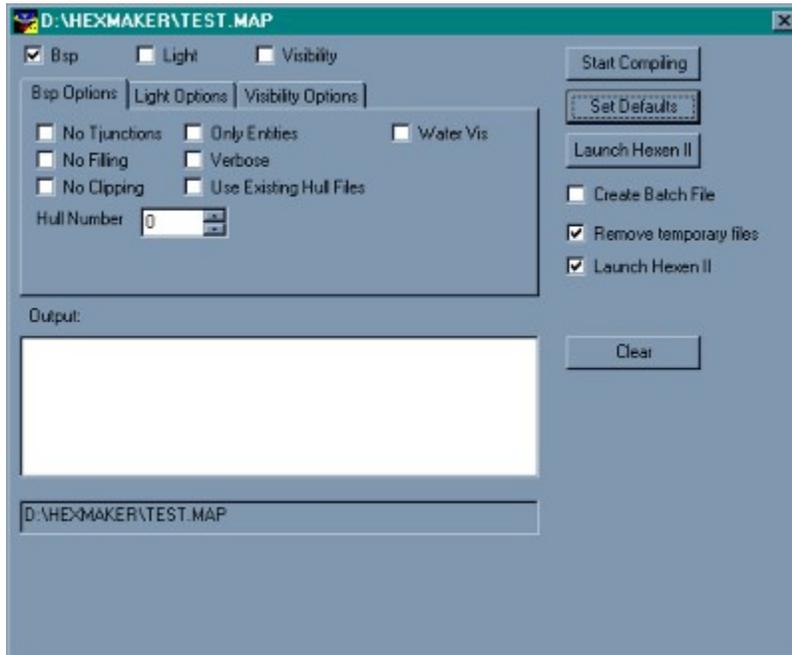
## [File Menu](#)

## Exporting Your Level

1. Select Hexen Export from the File menu.
2. The Export Hexen II Map File dialog is displayed.
3. The file name to be exported is shown in the File name box.
4. Select OK to export the file to Hexen II.map format.
5. After the .map format is written, the compilers will be run.

[File Menu](#)

## Exporter



The Hexen compiler interface will initially be displayed with the Bsp compiler, Remove temporary files and Launch Hexen II options checked.

The 3 check boxes [Bsp, Light, & Visibility] located at the top of the interface represent the 3 compilers needed to build a Hexen II level. If one or more of these boxes is checked, the compiler associated with that check box will be executed when the "Start Compiling" button is pressed.

After the "Start Compiling" button is pressed, the text of that button is changed to "Stop Compilers". If this button is pressed, it will terminate the current compilation.

A progress meter showing the elapsed time is displayed at the bottom of the window while the compilers are running. If the elapsed time is not being updated, the compilers have crashed. Press the "Stop Compiling" button, if the compilers have not terminated themselves.

The "Set Defaults" button sets all of the compiler options to their default values. When the interface is closed, the current compiler settings are saved so that the next time the interface is launched, the same settings are displayed.

If the "Launch Hexen II" box is checked, then when the "Launch Hexen II" button is pressed, the interface will be closed and Hexen II will be launched. If this box is not checked, the button will read "Close." The interface will be closed when this button is pressed, and the user will be returned to Hexmaker.

If the "Create Batch File" option is checked, then the text of the "Start Compiling" button will change to "Make Batch File." When this button is pressed, a batch file named "comph2.bat" will be created in the same directory as the hexmaker executable. All of the compiler options that are selected will appear in this batch file. The intent of this batch file is to give the user the option to run the compilers from a DOS box after terminating the Hexmaker program. The compilers require A LOT of memory.

You will need to have at least 150 Megs of free space on the drive that contains your swap file. You may need to use this option if you do not have enough memory to run the compilers and Hexmaker at the same time. The DOS compilers need to be in the same directory as the Hexmaker executable. A stand alone version of the compilers with a Windows interface [Hexvici.exe] has also been included for your convenience.

"Remove temporary files" causes temporary files [\*.pts, \*.h?] to be deleted after the compilers are finished.

The "Clear" button clears the output window.

#### Check boxes –

**Bsp** - run the BSP compiler when the "Start Compiling" button is pressed.

**Light** - run the Light compiler when the "Start Compiling" button is pressed.

**Visibility** - run the Visibility compiler when the "Start Compiling" button is pressed.

**Create Batch File** - create a batch file containing the currently selected compiler options when the "Make Batch File" button is pressed.

**Remove temporary files** - Remove the \*.pts, \*.h? files after compiling the level.

**Launch Hexen II** - Launch Hexen II with the level that was just compiled after closing the interface.

#### Buttons –

**"Start Compiling" / "Stop Compiling" / "Make Batch File"** - "Start the compilers." / "Terminate the current compile" / "Create a batch file containing the currently selected compiler options."

**"Set Defaults"** - Set the options back to their default values.

**"Launch Hexen II" / "Close"** - Launch Hexen II with the map file that was just compiled. / Close the compiler interface.

**"Clear"** - Clear all messages in the output window.

The 3 option tabs display the options available for each compiler. These options are explained in the following table.

### COMPILER TABLE

Compiler	Option Name	Default Value	GUI	What It Does
QBSP	No Tjunctions	FALSE	Check box	When this option is checked, Qbsp will skip the compiler pass that finds & splits faces that have too many edges. This option will decrease compile time. This option should not be used for a final compile.
	No Filling	FALSE	Check box	When this option is checked, Qbsp skips the compiler pass that determines whether a leaf is occupied. No leak file or port file is created. The bsp file will be larger than it would be if "nofill" were false. This option should not be used for a final compile.
	No Clipping	FALSE	Check box	When this option is checked, the hull files are not created. A bsp file cannot be created using this option unless the hull files already exist and the use hulls option is also true.

Only Entities	FALSE	Check box	Only update the portion of the bsp containing monster information. This option can be used if entities have been changed, but geometries haven't.
Verbose	FALSE	Check box	Compiler will display more messages.
Use Existing Hull Files	FALSE	Check box	Use the existing hull files. Do not create new ones. If this option is true and there are no hull files, the compile will fail.
Hull Number	0	Spin Control	If hull number = 1, create only the *.h1 file. If hull number = 2 create only the *.h2 file, etc. If there was a bsp file, it will be deleted. When hull number = 0, h1, h2, h3, h4, & h5 will be created provided that usehulls is not true
Water Vis	FALSE	Check Box	This has something to do with view points visible in water.
<b>LIGHT</b>			
Extra Sampling	FALSE	Check box	Enable more sampling. Makes lighting smoother with fewer "jaggies". Compiler time will be longer.
Near/Far		Slider	Distance that light shines from its point source.
Dim/Bright		Slider	Brightness of the light.
<b>VIS</b>			
Fast	FALSE	Check box	Allows faster vising by approximating what areas might be seen from a certain point instead calculating exactly what can be seen at a certain point. Level will run slower and may have "grey" areas.
Test Level	2	Spin Control	The number of times the bsp file is sent through the clipping algorithm. The level will play faster with a high test level. The higher the test level, the longer it takes to run vis.
Verbose	FALSE	Check box	More messages printed on screen
Gil Mode	TRUE	Check box	Raven optimizations.

## Loading Levels in Hexen II

Once the .bsp file has been exported, you need to load the level. You can load .bsp files one of two ways:

### MANUAL METHOD

- 1 Copy the .bsp file to the Hexen II/id1/maps directory.  
If that directory does not exist, create it.
- 2 Once the .bsp file is located in the maps directory, run Hexen II.
- 3 Display the Hexen II console by pressing the ~ (tilde) key on your keyboard, and at the prompt enter map <filename>.  
For example, if your level was named mylevel.bsp, at the prompt enter map mylevel. The file name should NOT include the file extension .bsp.

### AUTOMATIC METHOD

In the Export Hexen Map File dialog, after you have finished compiling the file, select Launch Hexen. You will now be able to see your new level in Hexen II.

## Lay Out a Level with Paper and Pencil

- 1 Get some graph paper, a pencil, and a big, sturdy eraser and build a general outline for your level. Make a simple initial layout by creating the larger spaces with very little detail.
- 2 Next, fill in the spaces with rooms and connecting hallways.
- 3 Once you have sketched your large spaces, determine where players will go and how they will move.

### Tip:

- In a single-player level, create a path that players must follow to get to the end of the level (or two or three, if you're up for a challenge). Design your deathmatch levels with several paths, or perhaps several areas with paths going from one area to another.
- Don't forget to take advantage of Hexmaker's capability to create three-dimensional multilevel paths. Gaming in three dimensions is about up and down as well as forward and backward. For instance, you can design a path to leave a room on a lower level and re-enter it higher up. For players, part of the fun of a level is trying to figure out how to get up to that ledge or walkway they can see above but can't reach! So, don't make your levels flat.

## Add Details to the Pencil and Paper Layout

After designing your horizontal and vertical spaces, rooms, and hallways, think about the appearance of each room and hallway (keep in mind your concept and theme). Then decide on which obstacles and benefits each should contain. If players enter the room more than once, how should it change from one player entry to the next? Include ambience items (crates, furniture, jutting ledges, monsters, weapons, health, etc.) in your levels *only* if they add ambience to your level. If you plan to add secrets to your level, now is the time to consider where they should be placed.

### Tip:

- If you are designing a level for an episode, ask yourself these questions:
- What weapons do players already have?
- What weapons/benefits should they have access to?
- What monsters belong on this level?
- How hard is the level going to be?
- Where in the player's path is the room?
- What obstacles does this room contain?
- What items does this room contain?
- What secrets does this room contain?
- What scenery does this room contain?
- What textures should I use there?
- What kind of lighting should I use?

## **Build a Level**

We suggest building rooms along the path one by one. This lets you compile the level and tweak the look and feel of each room as you build it.

### **Tip:**

Whatever you do, do not try to build it all at once: Build incrementally and save each version of your level under a different name. Your layout may have some unforeseen problems, or you may not like the way your plan works out in some places. Allow yourself time to check your progress and change your mind.

## Geometry

A geometry is a three-dimensional shape used to create walls, define doors, and act as a placeholder for predefined objects. As a Hexen II level designer, you can create very complex or very simple levels. But remember that the complexity of an object and number of objects you place in a level affect the speed and performance when you work in Hexmaker and when players try to use your game or level in Hexen II. Why? It simply takes a computer longer to draw more objects on a computer screen.

## Objects

Objects in Hexmaker are items such as weapons, mana, and health; architectural details such as arches and doors; and lights and torches—all found in Hexmaker’s 3-D galleries. Simply drag and drop objects from a gallery to design areas within the editor. Hexmaker objects define the position, attributes, and behaviors for corresponding Hexen II objects. For instance, when you drag a breastplate into a room you created in the Hexmaker Design Window, you are dragging a geometry placeholder into Hexmaker that looks like a breastplate, but it will only function as a breastplate after you export it into Hexen II.

How do you ensure that your object behaves the way you want it to in Hexen II? Each object has properties. Right-click on an object in a Hexmaker Design Window to display the Hexen II Object Properties dialog. The properties and behaviors you assign in this dialog are exported into Hexen II along with the object.

[Select a 3D Gallery Object](#)

[Use a Basic 3D Gallery Object](#)

[Create Your Own Custom Objects](#)

[Add Objects to a Gallery](#)

[Hexen II Object Properties Dialog](#)

[Object Tab](#)

[Attributes Tab](#)

[Interaction Tab](#)

[Advanced Tab](#)

## Lights

Lights illuminate a sphere around their positions. Brightness determines how much light is emitted and how large that light's sphere is. Although some lights appear in Hexen II as objects (torches, flames, and globes), the source of light is usually invisible. You might want to create a feature on the wall or ceiling to represent a light source.

## Badguys

Badguys all begin facing a default direction, but this direction can be changed by setting the angle the bad guy faces. Since players sneak up on Badguys, you may want to position your Badguys at an angle that makes sense for the room it inhabits. You can also set Badguys to not respond to players unless the player shoots them.

### Tip:

- If doors, Badguys, or buttons don't seem to operate in the way you intended, you might have the wrong properties set in the Hexen II Properties dialog. For example, if a door doesn't open wide enough to allow players to enter a room, the Hexen II Object Properties dialog must be set to 0 degrees. Refer to the figure for the proper placement of objects and their value in the Angle setting.
- Here's how you place figures:
  - 1 Make certain that you are in Top View so you can look down.
  - 2 Right-click on the bad guy.
  - 3 When the Hexen II Object Properties dialog appears, click Attributes tab, and set the Angle value.
  - 4 Repeat for any other Badguys.

## **Mana and Health**

As you design a level, give players enough armor, mana, and health to pass safely through the level. Scatter it around, but don't make too much available—make the players work for it a bit. Placement is important, too; huge clumps of mana look unnatural. Small groups of different kinds of mana and health are convenient and welcomed after slogging through a series of multiple hard-to-kill monsters or shooting players in multiplayer games.

### **Tip:**

If this is an episode level, make sure that the type of mana and health match the weapons and difficulty of the level.

## Lifts

Lifts, also called elevators or platforms, begin at the bottom and rise to the top. They look more realistic if they have structural support to hold their weight and to enable them to rise (for example, a rail to attach it to, or a hydraulic underneath it).

## Doors

By default, doors open when players approach them. If you give a door a name, the door will not open until it is triggered. If you place multiple doors close together, they attempt to behave as one door. If you want to make a door out of more than one piece (for example, a two-piece door in which each piece moves away from the center, you have to make two doors that move in opposite directions.

You specify an angle for doors that controls the direction in which they open. Doors move as far in the direction you specify as their length in that direction. The Lip attribute determines how much less than its full length a door will move. If you give a door health, the player must shoot the door and do damage greater than its health to open it. You can also control the number of seconds that the door is open before closing.

## Trigger

A trigger causes another event to occur in Hexen II when the trigger is activated or touched. For instance, pressing a button might cause a door to open or a lift to move. Setting up a trigger requires that you first name the object that you want to have triggered, like a door. Then, you must assign that door's name to the Target attribute of the trigger, like a button. For example, if you create a door, you put a name like door1 in its Object Name text box. Then, when you create the button that causes the door to open, enter door1 in its Target text box. When the player touches the button, the door opens.

## **Skill Levels**

When you create objects, you can set the Hexen II skill levels in which the object appears. You select beginner, intermediate, advanced, expert, or deathmatch level (or any combination) for the object to cause it to appear only in the specified skill level. That is, if you set a skill level of expert for a particular object, and a player is playing at an intermediate level, that object will not appear to that player.

## **Complex Geometry**

Some objects, such as doors, have settings that define their behavior as well as geometry that defines their shape. Creating a complex geometry and making it act like a door requires a series of steps: You must create the complex geometry, group it, and set its class to Door in the Hexen II Object Properties dialog.

## Object Types

Objects in Hexmaker are symbols. When you export your level, the Hexmaker export engine reads the symbols and places the appropriate objects into the Hexen II level during export. If a Hexmaker object is set to the class Geometry, it creates the correct geometry in Hexen II according to the size and shape of the object you created in Hexmaker. If a Hexmaker object is set to class blue mana, it creates blue mana in the same location in Hexen II.

We have provided objects in Hexmaker that look like Hexen II objects. Using these objects during your level building gives you a good idea of what the level will look like in Hexen II. These Hexen II objects are provided by Hexmaker and can be dragged and dropped into your level. Or you could use simple rectangles instead of Hexmaker's textured objects and set their class labels to export different Hexen II objects. This could be useful if you want to speed up screen redraws while you're designing your level.

## **Custom Objects**

Advanced users can import custom objects into Hexmaker. You must first write the Hexen II C code and create the appropriate structure for the object to behave inside Hexen II. Then you have to know how to apply that object as a patch to Hexen II. You can then create a graphic for the object in Hexmaker and point to the Hexen II add-on or mod that you created.

[Create Your Own Custom Objects](#)

## Textures

Textures set a scene and establish the ambience of your level design. Hexen II requires a texture to be applied to every geometry. Some of the textures supplied with Hexmaker include crenellated metal, rough-hewn wood, dead and weedy grass, sullen gray skies, nasty slime, and hot, fiery lava.

Three types of textures exist: Normal, animated, and liquid. Normal textures set the look and feel of a room, tunnel, waterway, concourse, canal, corridor, outdoor area, etc. Some normal textures include metal, wood, tapestry, tile, carpet, grass, asphalt, concrete, dirt, stone, plastic, gravel, etc. Animated textures create special visual effects and include blinking lights, buttons changing colors when activated by touch or shooting, undulating sky, etc. Liquid textures, when applied to an object, give that geometry the properties of a liquid. When players see a liquid texture, such as water, it exhibits the appearance of water and behaves like water. Once players enter that texture, they are affected by it.

### Tip:

- Liquid textures have some quirks. Generally, if a liquid texture is applied to a geometry, the entire object remains solid. In other words, if water texture is applied to the top of a rectangle, the geometry is just a rectangle with a thin film of water on top. But, if the liquid texture is applied to the rest of the rectangle, all of the walls become like liquid. Hexen II players can pass through them and drown in the box. If you want one of the walls to act as a solid and not as a liquid, you must put a solid geometry against that surface to make it seem solid.
- If you use animated textures, all of the subtextures must be included in the level. So, if you use an animated texture or a button, all of its subtextures must be included for the animation to work.

[Add Textures to Objects](#)

[Walk Mode Buttons](#)

## Common Level Design Mistakes

Learning the common traps designers fall into is also helpful in the learning process. Levels created by inexperienced designers can often be identified by the level editing mistakes they contain.

The following list describes some of the most common level editing pitfalls and some solutions:

- Creating rooms that are too large or stringing rooms together in a line. The farther the player can see, the slower the computer runs, thus reducing playing speed. So, break up a large room with walls and other types of structures.
- Designing a level that is too difficult. The person playing your level doesn't have the benefit of knowing the goal. Remember this and provide subtle clues to guide the player along a path. Add visual clues, such as keys, lights, interesting textures, and objects along the way.
- Making ceilings too low for the players to navigate and making hallways too narrow. The minimum gap that a player can maneuver is 35 Hexen II units.
- Having too much dead space. Large rooms without features look amateurish. Use odd angles or lighting features to enhance your playing area.

## Hexen II Units

### Hexen II Units

#### Action

- 225 The maximum distance that a player can jump and not fall into lava, water, or other traps.
- 42.5 The maximum distance that a player can jump straight up and get to another object.
- 275 The maximum distance that a player can fall and not be injured.
- 35 The minimum gap in floor spacing, slatted bridge, or floating squares of lava.
- 17 The maximum height that a step can be before the player must jump.

## Using Water Effectively

- 1 Use the Create Rectangular Object Tool to create an object.
  - 2 Use the Create Rectangular Object Tool to create a second object that is one-half the height of the first object and fits entirely within the first object.
  - 3 Select the Textures Tab, select the Texture Options Arrow, select Add Textures from the drop-down menu.
  - 4 The Textures List appears.
  - 5 Select the water texture you need and click OK.  
Apply the water texture to the second object.
- You have a room half filled with water.

### Tips:

- Water can be an interesting and challenging feature of levels. Always plan out how far players can swim underwater before they die. Test this by playing. You don't want to construct an underwater area that is too difficult to maneuver through.
- Avoid constructing a level that contains various water levels. Keep the water level consistent throughout your level.
- Remember that water is a box or container. For every room or box in which you are placing water, the water cannot go outside of the box. It must stay within the container. If it spills out, the water doesn't exist.
- You can make the appearance of a submerged item in water. Just remember that the part that is underwater must be an enclosed object and the part protruding from the water is a separate enclosed object.

## Slabbing and Hulling

If you choose not to use templates from the galleries, you can use two types of techniques as you build levels. Probably the most common technique is slabbing. Each wall has a front and back and top. You place these slabs together to form your level. You also can use a technique called hulling. With the hulling technique, you form an object the size and shape you want. Then you use the Connect Surfaces Tool to pull this object to another object. An opening is crafted where the two objects meet. Using hulling increases the speed at which you can build levels and also provides an easy way to create cool architectural features.

To hull an object, follow these steps:

- 1 Select the Surface Editor Tool.
- 2 In Top View, select the side of the object that you want to hull another object to. The Surface Editor Window appears.
- 3 Double-click on Make Transparent Button on the bottom right of the Tools Pad. The wall turns black, which means that it's transparent and has no texture applied to it.
- 4 Click on the Return Button.
- 5 Select the Connect Surfaces Tool.
- 6 Click on the wall again.  
The wall that you are hulling will shift slightly.

### Tip:

Make sure that when you are hulling an object that you snap the object back to the original grid. If you are planning a hole in a window, be sure to put boxes around the frame to avoid unattractively thin walls.

## Finding Leaks in Levels

### METHOD ONE

- 1 Once you have a leak file, copy it to the maps directory with the .bsp.  
(The leak file has the .pts extension.)
- 2 Load the .map file into Hexen II.
- 3 From the console enter **NOCLIP** so you can go outside the model and look around.
- 4 From the console enter **POINTFILE** and the leak file will be used to create lines that show you where the leaks are.
- 5 Fly around the model looking for the lines to show you where things are going wrong.

### METHOD TWO

- 1 Save your model under a different name.
- 2 Use the Create Rectangular Object Tool to make an object to enclose your entire model (this object is called a bounding box).
- 3 Recompile.

If this method doesn't work, move to method three.

### METHOD THREE

- 1 Check over the changes made since the last time you compiled without leaks, first in Hexen II, then in Hexmaker.
- 2 If there's a leak, you can see outside of the model "into the void."
- 3 If this is the leak, fix it by putting something in the way.

If this method doesn't work, move to method four.

### METHOD FOUR

One of the things that isn't obvious about the QBSP compiler is that it determines which parts of the map are "inside" by looking at all of the items in the level. If there's an item in an area of the map, it assumes that area must be "inside." So, if one of your items is outside the level, what have you got a sealed map with leaks. This includes lights, triggers, monsters, weapons, mana, cameras, nulls, pretty much anything that is not geometry. To resolve this issue, delete all the non-geometric items from the level.

#### Tip:

When you build a model, put all of your lights in one layer, monsters in another, and other items in a third, all separate from the layers you use for geometry.

If there's no more leak, you have to figure out which item you recently added that "unseals" the level.

If this method doesn't work, move to method five.

### METHOD FIVE

- 1 Make a backup copy of you .dmm file.
- 2 Delete one-half of you level and seal off the other half in the obvious places.
- 3 Compile.  
If there's a leak, then you know at least one of the leaks is in this half of the map.
- 4 Repeat methods three through five on the half-map you have left.

[Containment](#)

[Convex Objects](#)

[Rules of Drawing](#)

## Avoiding Leaks

### METHOD ONE

Build with snap-to-grid on. Rooms will generally fit together much better when you're snapping.

### METHOD TWO

Build in pieces. This isn't always easy, but it helps in the long run: Build each separate room or small group of rooms by itself and then save it, compile it, light it, vis it, etc., on its own. This method helps prevent leaks in two ways:

- 1 It cuts down on compile times. All the compilations (QBSP, light, and vis) take exponentially more time as your map grows larger. This means that if you double the size of your map, you might quadruple the time it takes to compile. So, divide my map "concept" into smaller pieces and compile separately at first to make sure they look and feel right.
- 2 It allows you to check individual rooms or sections for leaks before you add them into your final level. This is really helpful. Smaller "levels" are easier to leak-check than larger ones.

This method does have a couple of drawbacks, though. Most notably, you have to copy-and-paste your room into the final level. Here are some things to consider when using this technique:

- n To avoid overlapping any other portions of your "final" level, set the bottom of the Z ruler guide (the gray area with black arrows on the ends in the ruler) very high or very low. When you paste, Hexmaker will paste the room at the bottom of the Z ruler. If it's set way low or way high, your new room won't overlap your existing map.
- n Cutting and pasting does not keep the connections between your rooms, so you'll have to reconnect sections of your new room if they were connected before.

[Containment](#)

[Convex Objects](#)

[Rules of Drawing](#)

### **Creating Vertical Holes Between Two Rooms**

- 1 Select the Front View so you can see the floor or ceiling where you are placing the hole.
- 2 Select the Surface Editor Tool from the Design Window Tools Pad.
- 3 Place the cursor on the line where the top and bottom rooms join.
- 4 Click.  
The Surface Editor appears.
- 5 In the Walk Window with the Surface Tool selected just click on the floor or on the ceiling of the object you want to edit.
- 6 Drag-and-drop a 2D object from the 2-D Shapes Gallery or use the Create Rectangular Objects Tool to freehand draw a shape.

### Creating Lava-Filled Rooms

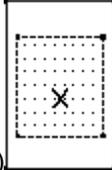
- 1 Use the Create Rectangular Object Tool to create an object.
- 2 Use the Create Rectangular Object Tool to create a second object that is one-half the height of the first object and fits entirely within the first object.
- 3 Select the Textures Tab, select the Textures Options Arrow, select Add Textures from the drop-down menu.  
The Textures List appears.
- 4 Select the lava texture you need and click OK.
- 5 Apply the lava texture to the second object.  
You have a room half filled with lava.



## Containment

Containment provides two important benefits:

- 1 Every object in Hexmaker knows which objects it contains and which objects contain it.  
For example, if you move an object like a rectangle, all objects contained within it move and retain their orientation to each other. If you delete an object, all objects contained within it are deleted.
- 2 In Hexmaker, containment is an all-or-nothing state; an object is either fully contained within another object, or it is distinct from other objects.  
Objects cannot overlap (but, they can be joined at a common surface).  
If you drag a small object into a larger object, a state of containment exists when the mouse pointer reaches the interior of the larger object. The program indicates containment by displaying



small blocks (“containment markers”) at the vertices of the containing object. These markers disappear when you release the mouse button. The illustration above shows containment markers displayed while a small object is being dragged into a larger object.

### Tip:

- Overlapping objects will not export correctly to Hexen II. Do not overlap 3-D objects!
- While it is possible to draw overlapping objects, Hexmaker does not warn you if you do this.
- Overlapping objects may not be drawn correctly, causing some background objects to appear in front of objects in the foreground within the Walk Window.
- To move an object without its contained objects, hold down the Ctrl key, select the room, and drag it.

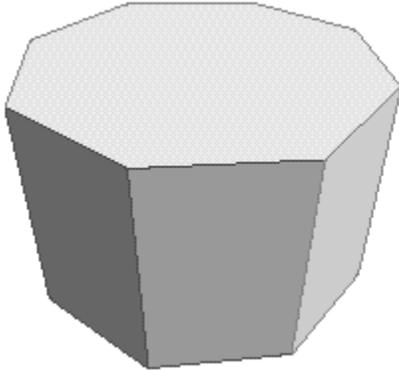
[Avoiding Leaks](#)

[Finding Leaks in Levels](#)

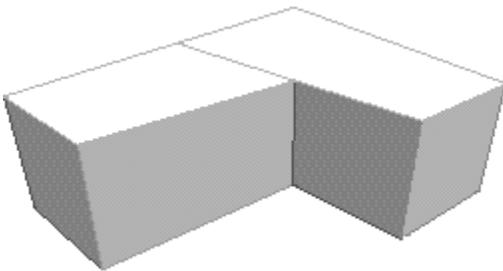
## Convex Objects

All objects created in Hexmaker must be convex. Convex is defined as “having a surface or boundary that curves or bulges outward, as the exterior of a sphere.” Virtus defines a convex object as an object whose polygonal outline can have a line drawn from any point on it to any other point on it without the line passing outside the outline boundary.

Although non-convex objects are not permitted, the appearance of a non-convex object can be achieved by creating more than one convex object, connecting these, and then creating an opening in the common wall between them.



Convex Objects



Non-convex Object

[Avoiding Leaks](#)

[Finding Leaks in Levels](#)

## Rules of Drawing

- 1 Do not overlap three-dimensional objects so that one object is partially contained within another.
- 2 Non-convex objects are not allowed. Objects that are non-convex should be created by connecting two or more convex objects.
- 3 Speed and detail are inversely proportional: You have to give up one for the other.
- 4 The more complex your level, the slower you can walk through your level in the Walk Window. Having a larger processor will increase the apparent speed of your level.
- 5 Transparent objects and surfaces drain processing power: Use them sparingly.
- 6 Everything is an object with depth in Hexmaker. You cannot draw a line. Even if an object appears infinitely thin, it has depth.

[Avoiding Leaks](#)

[Finding Leaks in Levels](#)

## Coordinates

Coordinates pinpoint the location of objects on your screen.

In the Top View of Hexmaker, X represents the horizontal units of measure on the screen (from left to right). Y represents the vertical units (from bottom to top). When you switch to the Front View, X still represents the horizontal units of measure and Z represents the vertical units. Finally, when you switch to the Right View, Y represents the horizontal units of measure and Z represents the vertical units.

For example, coordinates -50, 200 in the Top View translates to -50 Hexen II units on the X axis and 200 Hexen II units on the Y axis. In the Front View, you'll see that -50, 200 again translates to -50 Hexen II units on the X axis, with 200 Hexen II units represented on the Z axis. And in the Right View, -50, 200 translates to -50 Hexen II units on the Y axis, with 200 Hexen II units represented on the Z axis.

In Hexen II, the orientation of Hexmaker's design top view corresponds to the following: up is 90 degrees, left is 180, down is 270, and right is 0.

In most cases when given only one angle choice for orientation of an object, the angle is referring to the angle as seen in the Top View. If an up and down angle is possible, Hexen II uses -1 as up and -2 as down.

## Connecting

The *Connect Surfaces Tool* is used to join two rooms together at a common surface. There are two methods for connecting rooms. Rooms will only have a hole between them if one of the surfaces you are connecting is transparent or if it has a transparent surface on it.

1. The first method for connecting is used for connecting rooms that are not touching each other already. Select *Connect Surfaces Tool* from the Tools Pad (this tool looks like a hammer hitting a nail and is used to create openings between rooms). Select one of the rooms to be joined. Drag the room to the room that you wish to connect it to. Line up the walls to be connected so that they are parallel with each other and let go. The rooms should now be connected and any transparent surfaces will show through.

2. The second method is used to connect to surfaces that are already touching. Select *Connect Surfaces Tool* from the Tools Pad. Click this tool on the common line between the two rooms that you want to connect. Hexmaker understands this to mean that you wish to connect these walls and will cut the transparencies out of the proper walls.

Note: Grouped objects can not be connected to and you cannot use the connect tool within a grouped object. You must ungroup the objects before trying to make connections.

Tip: The connect-tool method can be used to align surfaces that are not parallel. It has the ability to rotate the surface of the dragged object to meet exactly the surface of the other object. This is very handy if you have made an object in one orientation and want to duplicate to connect to a surface that is facing another direction.



## Windows

When Hexmaker opens, you'll see three windows. At the left, the Gallery Window displays the galleries used in building levels. At the top-right, the Design Window displays the Top View, one of that window's three views in which you can edit some three-dimensional objects. (The other two Design Window's views are Front and Right.) Below the Design Window is the Walk Window, an empty window with a dark gray background. As you add objects to your level in the Design Window, the Walk Window will show you a three-dimensional drawing of them.

[Select a 3D Gallery](#)

[Activate a Window](#)

## Design Window

The Design Window offers two methods to see your three-dimensional objects:

### METHOD ONE

Choosing a **Top**, **Front**, or **Right** view allows you to edit three-dimensional objects (mana, weapons, and so forth).

### METHOD TWO

Activating the Surface Editor Tool allows you to edit 2-D surfaces (windows, doors, and so forth). The window's title bar includes the word Surface; and a 2-D gallery appears in the Gallery Window. To edit a 2-D surface, you select the desired surface in the Basic 2-D Gallery and drag the surface into the Design Window onto a selected surface. You can now edit the surface.

[Activate a Window](#)

## **Walk Window**

The Walk Window display a three-dimensional drawing of the two-dimensional items that you place in the Design Window. In this window, you can navigate through (walk through) your model.

[Activate a Window](#)

## Gallery Window

Displays a collection of either two- or three-dimensional objects or textures, depending on whether you've chosen to work with a 2-D gallery or a 3-D gallery. An object in a gallery can be dragged and dropped into the Design Window and edited.

The Gallery Window is always active, and you can activate either the Design Window or the Walk Window.

[Select a 3D Gallery](#)

[Select a 3D Gallery Object](#)

[Activate a Window](#)

## **Navigation Buttons**

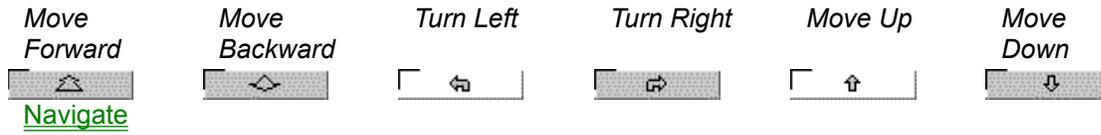
Movement in the Walk Window is accomplished by using the standard Virtus navigation cursor techniques or the Navigation buttons along the bottom of the Walk Window.

[Navigate](#)

## Novice Navigation Buttons

The Navigation buttons are active when the Walk Window is active. Click on one of the Navigation buttons to move in that direction. If you hold down the mouse button while pointing to a navigation button, you move continuously.

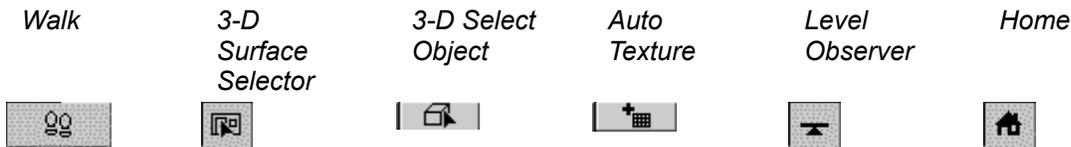
From left to right along the bottom of the Walk Window, the Navigation buttons are:



## Walk Mode Buttons

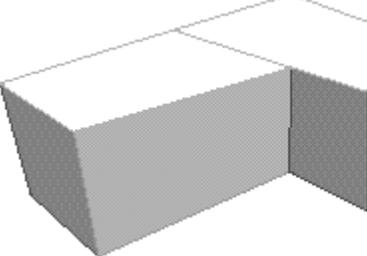
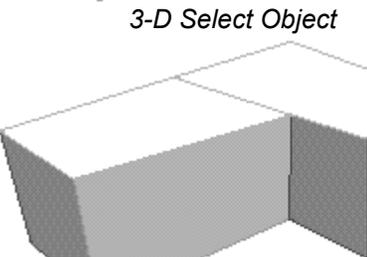
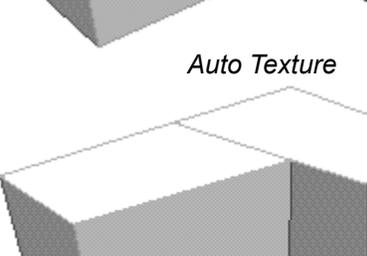
The Walk Mode buttons are displayed to the left and to the right of the Novice Navigation buttons along the bottom of the Walk Window. The Walk Mode buttons determine what happens when you click with the mouse cursor in the Walk Window.

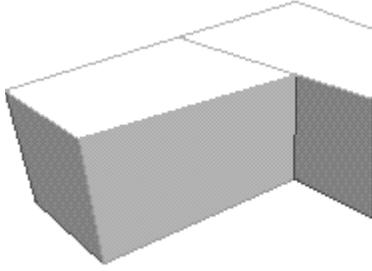
The Walk Mode buttons from left to right are:



### Tip:

Only one Walk Mode button can be selected at any time.

Button	Function
 <i>Walk</i>	The Walk Button allows you to “walk through” the Walk Window by positioning the cursor around the cross hair.
 <i>3-D Surface Selector</i>	The 3-D Surface Selector Button allows you to quickly choose a surface in the Walk Window to edit; you can change in the surface’s texture or add surface features such as door or window openings.
 <i>3-D Select Object</i>	The 3-D Select Object Button allows you to select an object in the Walk Window and have it highlighted and centered so that you can edit it in the Design Window. This is extremely useful when you are working on a complex design and cannot select the correct object in the Design Window because another object is blocking it. (Another way around this is to change views, select the object, and return to the Top View to move or edit the object.)
 <i>Auto Texture</i>	With the Auto Texture Button, you can apply a selected texture to any surface you click on.
 <i>Level Observer</i>	With the Level Observer Button, you orient the Observer’s level of sight in the Walk Window, making it level if it has been altered by the Shift key while you were navigating.



*Home*

Home Button allows you to return your position in the virtual environment to the 0,0,42.5 Hexen II units coordinate (at about eye level).

**Tip:**

If you use either the Select Surface Button, Select Object Button, or the Auto Texture Button, you need to select the Walk Button to enable navigation (walking) again.

[Select a 3D Object Surface](#)

[Add Textures to Objects](#)

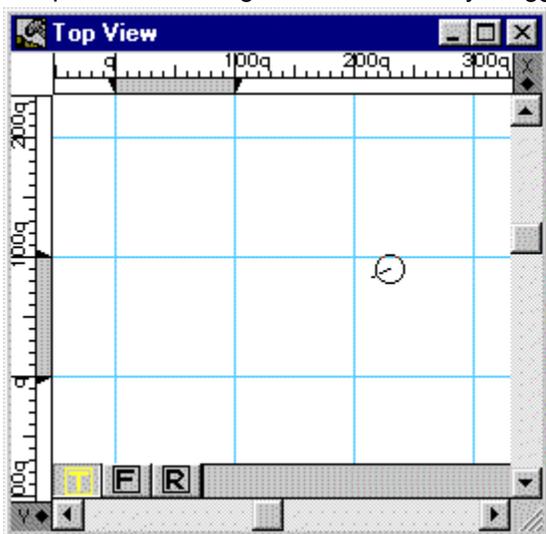
[Navigate](#)

## Depth Control Gauges

A Depth Control Gauge appears on each ruler in the Design Window. Depth Control gauges determine the inflation distance and position of objects. Because there are three dimensions in Hexmaker, there are three Depth Control gauges that determine inflation distance and position in the X, Y, and Z dimensions. By reading the letter in the Dock on each ruler, you can determine which dimension each Depth Control Gauge is associated with.

A Depth Control Gauge consists of two black half-arrowheads on each end of a gray bar. The half-arrowheads are called endpoints. The distance between the endpoints is the inflation distance, or the depth. The object position is determined by where the endpoints are in space. The endpoints determine where the object begin or ends.

Endpoints can be dragged to a new location, thus stretching or compressing the gray bar, or the entire Depth Control Gauge can be moved by dragging the gray bar.



## Handles

In Hexmaker, one of four types of handles appears when you click on an object. The specific type of handle gives you information about how the selected object can be edited or manipulated. The handle types are:

<b>Handles</b>	<b>Functions</b>
<i>Black</i>	Black handles can be manipulated in any direction to change the object's shape. When you're in the Top View, all objects from the Basic shapes 3-D Gallery show black handles when the objects are selected (In the Front and Right views, white handles are shown.).
<i>Gray</i>	Grouped objects (two or more objects selected and joined with the Group command in the Design menu) show gray handles when selected. Grouped objects first must be ungrouped (with the Ungroup command in the Design menu) before these objects can be manipulated. Gray handles also show up on objects that have been rotated, making them uneditable.
<i>White</i>	A selected object showing white handles tells you that only the depth of the object can be manipulated.
<i>Red</i>	Rigid objects have red handles indicated that they cannot be resized or rotated, and the Object Property class cannot be changed.

## Memory Indicator

The memory indicator is to the right of the message bar, at the lower-right corner of the Hexmaker Window. It is a square that indicates the state of your Windows memory. The memory is computed by adding the amount of free RAM you have to the amount of swap space, which is best estimated by the amount of free disk space on the drive where windows is installed. If the memory indicator is green, you should have enough memory to take advantage of all of the Hexmaker features. If it is yellow, you are low on memory. If it is red, you are almost out of memory and using Hexmaker or any other program further could be unpredictable.

## Observer

In the Design Window, the Observer is a circle with a line extending from its center; it represents where you're standing in the virtual world. The tip of the line (outside the circle) points in the direction in which you're looking. When you start Hexmaker, the Observer is positioned at coordinate 0, 0. When you save a file, the Observer will be saved in its current position.

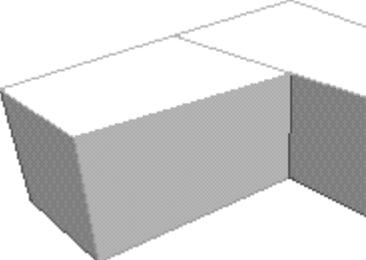
## **Surface Editor**

The Surface Editor appears in the Design Window when a surface is selected. It allows you to edit the selected surface.

## Surface Editor Tools Pad

The Surface Editor Tools Pad displays the tools you use to edit surfaces of objects. The Surface Editor Tools Pad has many of the same tools as the Design Window Tools Pad and a few others.

The tools exclusive to the Surface Editor are the Return Button, and the Opacity Modifier Tools.

Tools	Function
 <p data-bbox="362 426 529 453"><i>Return Button</i></p>	<p data-bbox="586 426 1300 485">The Return Button closes the Surface Editor and returns you to the Design Window.</p>
 <p data-bbox="313 516 529 543"><i>Select Object Tool</i></p>	<p data-bbox="586 516 1300 636">The Select Object Tool selects entire objects to be edited. Click on an object to select it. A selected object displays handles at its vertices. A vertex is where two object surfaces, or faces, meet.</p>
 <p data-bbox="350 638 529 665"><i>Zoom-Out Tool</i></p>	<p data-bbox="586 638 1300 793">The Zoom-Out Tool decreases the apparent scale of the Design Window. Select the Zoom-Out Tool by clicking on it, point to the area that you want to zoom away from, and click to decrease the apparent scale of the Design Window by a factor of two.</p>
 <p data-bbox="371 795 529 823"><i>Zoom-In Tool</i></p>	<p data-bbox="586 795 1300 926">The Zoom-In Tool increases the apparent scale of the Design Window. Select the Zoom-In Tool by clicking on it, point to the area that you want to zoom toward, and click to double the apparent scale of the Design Window.</p>
 <p data-bbox="305 928 529 955"><i>Resize Object Tool</i></p>	<p data-bbox="586 928 1300 1020">The Resize Object Tool scales an object about its center or about a specified anchor point. Objects are resized uniformly along all three axes or non-uniformly along a single axis.</p>
 <p data-bbox="212 1228 529 1287"><i>Create Rectangular Object Tool</i></p>	<p data-bbox="586 1228 1235 1262">The Create Rectangular Object Tool draws a rectangle.</p>
 <p data-bbox="310 1346 529 1373"><i>Rotate Object Tool</i></p>	<p data-bbox="586 1346 1284 1438">The Rotate Object Tool is used to rotate an object. This tool works in any view (Top, Front, and Right), allowing rotation around more than one axis.</p>
 <p data-bbox="331 1440 529 1467"><i>Lock Object Tool</i></p>	<p data-bbox="586 1440 1300 1596">The Lock Object Tool functions in the Design Window and in the Surface Editor. It allows you to lock objects or surface features so they cannot be edited. A locked object is visible in the Design Window but cannot be selected or changed until it is unlocked. To do so, select Unlock All from the Edit menu.</p>
 <p data-bbox="224 1598 529 1625"><i>Add/Remove Handle Tool</i></p>	<p data-bbox="586 1598 1300 1690">The Add/Remove Handle Tool lets you add a new handle to a surface feature or remove an existing handle. A handle represents the vertex (the meeting of two object surfaces).</p>
 <p data-bbox="256 1688 529 1747"><i>Create Irregular Object Tool</i></p>	<p data-bbox="586 1688 1284 1787">The Create Irregular Object Tool draws an irregular-shaped object, one segment at a time. This tool does not draw non-convex objects or surface features.</p>
 <p data-bbox="266 1808 529 1835"><i>Opacity Modifier Tools</i></p>	<p data-bbox="586 1808 1300 1879">The Opacity Modifier Tools can be used to change the opacity of an object's surface to opaque or transparent. The Make</p>

Opaque Button is on the left; the Make Transparent Button is on the right.

**Tip:**

When the Surface Editor is open, the Gallery Window changes to show the Basic 2-D Gallery, a collection of surface features. A surface feature, like an object, can be dragged from the gallery and dropped into the Surface Editor onto a selected surface.

[Lock an Object](#)

[Unlock an Object](#)

[Resize an Object](#)

[Resize an Object About Its Center](#)

[Resize an Object About an Anchor Point](#)

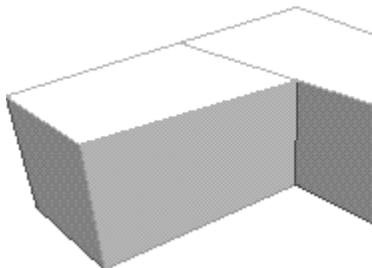
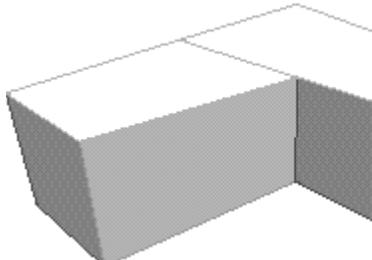
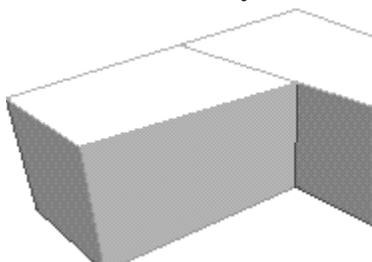
[Rotate](#)

[Cut a Hole](#)

[Select an Object Surface](#)

## Design Window Tools Pad

When you open Hexmaker, the Design Window Tools Pad displays the tool you use to edit objects. Below is a description of its tools and how they function.

Tool	Function
<p data-bbox="370 388 529 417"><i>Zoom-In Tool</i></p> 	<p>The Zoom-In Tool increases the apparent scale of the Design Window. Select the Zoom-In Tool by clicking on it, point to the area that you want to zoom toward, and click to double the apparent scale of the Design Window. Use the Ctrl key and this tool to Zoom-Out.</p>
<p data-bbox="256 695 529 724"><i>Connect Surfaces Tool</i></p> 	<p>The Connect Surfaces Tool functions in the Design Window and is used to connect two objects together at a command surface. A connection between surfaces is necessary to see any common surface features such as the transparent surface features representing doorways or windows. Without the connection, surface features between objects are not shared and holes do not penetrate both surfaces.</p>
<p data-bbox="310 911 529 940"><i>Select Object Tool</i></p> 	<p>The Select Object Tool selects objects to be edited. Click on an object to select it. A selected object displays handles at its vertices. A vertex is where two object surfaces, or faces, meet.</p>
<p data-bbox="326 1211 529 1241"><i>Lock Object Tool</i></p> 	<p>The Lock Object Tool functions in the Design Window and in the Surface Editor. It allows you to lock objects or surface features so they cannot be edited. A locked object is visible in the Design Window but cannot be selected or changed until it is unlocked. To do so, select Unlock All from the Edit menu.</p>
<p data-bbox="326 1373 529 1402"><i>Hide Object Tool</i></p> 	<p>The Hide Object Tool functions in the Design Window and in the Surface Editor and allows you to hide objects or surface features in the Design Window, the Walk Window, or both. Hidden objects and surface features are not visible in the Design Window but are still a part of your level. They can be seen in the Walk Window. To make them visible again in the Design Window, choose Show All from the Edit menu.</p>
<p data-bbox="305 1589 529 1619"><i>Resize Object Tool</i></p> 	<p>The Resize Object Tool scales an object about its center or about a specified anchor point. Objects are resized uniformly along all three axes or non uniformly along a single axis.</p>

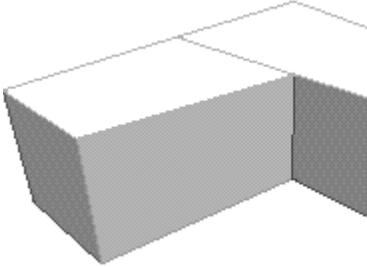
### *Skew Object Tool*



The Skew Object Tool distorts an object from its true symmetrical form, taking the object out of plumb. An object can be skewed on more than one axis but only from the view in which it was created.

### *Create Rectangular Object Tool*

The Create Rectangular Object Tool draws a rectangle.



### *Create Irregular Object Tool*

The Create Irregular Object Tool draws an irregular-shaped object, one segment at a time. This tool does not draw non-convex objects or surface features.



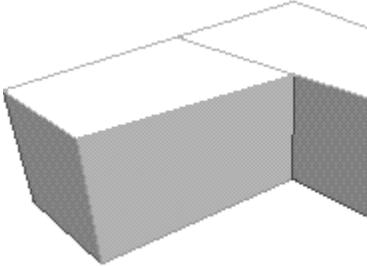
### *Add/Remove Handle Tool*

The Add/Remove Handle Tool lets you add a new handle to a surface feature or remove an existing handle. A handle represents the vertex (the meeting of two object surfaces).



### *Rotate Object Tool*

The Rotate Object Tool is used to rotate an object. This tool works in any view (Top, Front, and Right), allowing rotation around more than one axis.



### *Surface Editor Tool*

When you press the 3-D Surface Selector Button and select a surface to edit in Hexmaker's Design Window, the Surface Editor appears and the Surface Editor Tools Pad replaces the Design Window Tools Pad. The selected button determines where the texture or surface feature is applied to the surface.



### *Tumble Editor Tool*

The Tumble Editor Tool allows you to edit the selected object and slice parts of it off to create irregular object shapes..



[Lock an Object](#)

[Unlock an Object](#)

[Resize an Object](#)

[Resize an Object About Its Center](#)

[Resize an Object About an Anchor Point](#)

[Rotate an Object](#)

[Cut a Hole](#)

[Select an Object Surface](#)

[Move an Object](#)

[Select an Object](#)

[Add a Handle to an Object](#)

[Skew an Object](#)

Connect Two Surfaces  
Modify Opacity

## **Menus**

Menus allow you to display Hexmaker commands. Some are typical Windows 95 menus you are familiar with and others are unique to Hexmaker. This section lists them and describes them for you.

## File Menu

<b>Command</b>	<b>Purpose</b>
<i>New</i>	creates and opens a new Hexmaker file.
<i>Open. . .</i>	displays the Open dialog from which you can select a file to open.
<i>Close</i>	closes the current file. If you made any changes to the file since the last time you saved it, you are prompted to save the changes before the file is closed.
<i>Save</i>	saves the current file under the currently used name or prompts you for a name if untitled.
<i>Save As. . .</i>	opens the Save As. . . dialog, which allows you to save the current file under a new name.
<i>Game Options</i>	allows you to set level options, game settings, and Hexmaker defaults.
<i>Hexen Export</i>	allows export of .map files and creation of .bsp file with lighting and visibility so your level can be played in Hexen II.
<i>Exit</i>	exits Hexmaker. If a file is open and changes were made since the last time it was saved, you are prompted to save any changes before exiting.

## Edit Menu

<b>Command</b>	<b>Purpose</b>
<i>Undo</i>	undoes the last operation performed in the Design Window.
<i>Cut</i>	moves any selected objects to the Clipboard. Cut objects can be pasted with the Paste command.
<i>Copy</i>	copies any selected objects to the Clipboard, leaving the original in place. (Note that Cut moves objects to the Clipboard and does not leave the original in place.) Copied objects can be pasted with the Paste command.
<i>Duplicate</i>	<p>makes an exact copy of any selected object or surface feature and places it on or near the original. Unlike the Cut and the Copy commands, Duplicate does not copy to the Clipboard.</p> <p>Duplicate duplicates objects as well as object placement, scaling, and rotation. For example, you can create an object, duplicate that object, and position the second object on the right side of the original so that the objects appear to be touching. Then you can select Duplicate again and an identical third object, joined on the right side of the second object, will appear; you'll have a line of three objects spaced the same distance apart. The duplicate's position relative to the object that it duplicated is maintained as long as the original object remains selected. If you continue choosing Duplicate, the objects will continue duplicating to the right until you have a line of identical objects. This can be extremely helpful in creating objects such as staircases or fence posts.</p> <p>Changes to Object Type are not duplicated. For example, if you create an object 100 Hexen II units tall and then duplicate it and increase the height of the duplication to 150 Hexen II units, subsequent duplications will have a height of 150 Hexen II units—they will not grow in height by increments of 50 Hexen II units.</p> <p>The Duplicate command only duplicates manipulations to the entire object. It does not duplicate changes to part of an object.</p>
<i>Paste</i>	copies the contents of the Clipboard into the level.
<i>Delete</i>	<p>removes selected objects or surface features without placing them in the Clipboard. Selected objects can also be deleted by pressing the Delete key or the Backspace key. Delete removes objects completely, whereas Cut moves objects to the Clipboard from which they can be pasted back into the level.</p> <p>If you Delete or Cut something accidentally and need to reverse that action, immediately choose Undo under the Edit menu after the cutting or clearing operation.</p>
<i>Select All</i>	selects all objects.
<i>Unselect All</i>	unselects objects or surface features (handles are removed). Another method of unselecting is clicking on the background in the Design Window or Surface Editor.
<i>Hide Selected</i>	<p>hides selected objects and surface features. Hiding objects or surface features allows you to work on surface features without having to shuffle them.</p> <p>By default, hidden objects are hidden in the Design Window and surface features are hidden in the Surface Editor, but they remain visible in the Walk Window.</p>
<i>Unhide All</i>	displays surface features hidden in the Design Window. The Ctrl key must be held down in conjunction with Show All to display them. If

	using the Ctrl key with this command, you must select the command from the menu; you cannot use the command key equivalent.
<i>Increase Grid Size</i>	increases the number of grid lines per unit by half in the design window.
<i>Decrease Grid Size</i>	decreases the number of grid lines per unit by half in the design window.
<i>Lock Selected</i>	locks selected objects in the Design Window and selected surface features in the Surface Editor. Locking objects or surface features prevents them from being edited. When an object or surface feature is locked, its polygonal outline is solid.
<i>Unlock All</i>	unlocks all locked objects and surface features locked with the Lock Object Tool or with the Lock Selected command to allow editing. You can also lock a layer, which locks all objects on that layer.
<i>Preferences</i>	The Preferences dialog allows you to set preferences for Hexmaker. Each time you save a Hexmaker level, any changes that you made to the Preference settings are saved with it. When you open the model again, its preferences are restored. Preferences includes three separate tab selections: Editor, Rendering, and Navigation.

**Tip:**

If you want to accomplish the effect of an incremental increase in size or shape, you must use the Resize Object Tool to adjust the size or shape of the first duplication and then duplicate it.

## Preferences, Editor Options

Command	Purpose
<b>Aids</b>	
<i>Show Ruler</i>	if selected, displays rulers.
<i>Show Grid</i>	if selected, displays the background grid based on the ruler's major tick marks.
<i>Show Depth</i>	if selected, displays the Depth Control gauges on the rulers.
<i>Show Guides</i>	if selected, displays Non-Reproducing Guidelines.
<i>Show Origin</i>	if selected, displays Movable Origin.
<i>Snap to Grid</i>	<p>if selected, snaps objects and surface features to an invisible grid when they are created, moved, or edited. The grid is based on the ruler tick marks in the Design Window and Surface Editor. Handles of objects and surface features will "snap to" the grid when Snap to Grid is selected.</p> <p>If you zoom in or out, the ruler tick marks change, changing the invisible grids. For example, each tick mark represents one Hexen II unit, so Snap to Grid will snap objects to the nearest Hexen II unit.</p> <p>If Snap to Grid is not selected, the ability to create, edit, and move objects and surface features is constrained only by screen pixels.</p> <p>If an object, surface feature, or slice is created with Snap to Grid unselected and then edited or moved with Snap to Grid selected, the object or surface feature moves in increments of the invisible grid but doesn't actually snap to the grid. This makes it possible for handles to fall between the ruler tick marks, which can be frustrating when you try to align objects or surface features. However, if you move a handle rather than the whole object or surface feature, the handle will snap to the grid.</p>
<i>Object Class</i>	if selected, displays object class in Design Window info bar when the cursor passes over it.
<b>Color</b>	
<i>Ruler</i>	lets you specify ruler color.
<i>Grid</i>	lets you specify Grid color.
<i>Depth</i>	lets you specify Depth Control Gauge color.
<i>Guide</i>	lets you specify Non-Reproducing Guideline color.
<i>Origin</i>	lets you specify Movable Origin color.
<i>Background</i>	lets you specify background color. The background color is the color of the drawing area in the Design Window and Surface Editor.

## Preferences, Rendering Options

<b>Command</b>	<b>Purpose</b>
<b>Shading</b>	
<i>Shaded</i>	displays objects with lighting effects.
<i>Unshaded</i>	displays object colors with no lighting effects.
<i>White</i>	displays objects with no color (white color fill) and no lighting effects.
<b>Drawing</b>	
<i>Fill &amp; Frame</i>	displays both the color fill and wire frame of objects.
<i>Fill</i>	displays only the color fill of objects with no wire frame.
<i>Frame</i>	displays only the wire frame of objects.
<b>Flash Graphics</b>	turns on Virtus Corporation drawing routines and uses those routines instead of the standard Microsoft Windows drawing routines. Flash Graphics substantially speeds up the Hexmaker application. Flash Graphics is turned on by default; however, some video boards are not compatible with Flash Graphics. The Hexmaker application checks for compatibility with your system when you install, and if a conflict is detected, Flash Graphics is turned off.
<b>Options</b>	
<i>Dithering</i>	is a technique that allows more colors, thus more color-accurate renderings. Dithering is turned on by default. The disadvantage of dithering is that the screen appears more grainy.

### Tip:

If you turn off the check box and are not experiencing difficulties with the graphics, you will get errors when using textures and when viewing three-dimensional geometry's in the Walk Window.

## Preferences, Navigation Options

Command	Purpose
<b>Aids</b>	
<i>Cross Hair</i>	if selected, displays a cross hair in the Walk Window that is used as a reference point for direction and walk through speed.
<i>Velocity Grid</i>	if selected, displays horizontal and vertical marks at increments relative to the cross hair where walk speed changes.
<i>Collision Detect</i>	if selected, the Observer can move through doors or transparent openings on surfaces only. When the Observer encounters a wall, it stops; a clicking sound confirms that the Observer ran into a wall.

## Design Menu

<b>Command</b>	<b>Purpose</b>
<i>Snap to Grid</i>	<p>snaps objects and surface features to an invisible grid when they are created, moved, or edited. The grid is based on the ruler tick marks in the Design Window and Surface Editor. Handles of objects and surface features “snap to” the grid when Snap to Grid is selected.</p> <p>If you zoom in or out, the ruler tick marks change, changing the invisible grids. For example, each tick mark represents one Hexen II unit, so Snap to Grid will snap objects to the nearest Hexen II unit.</p> <p>If Snap to Grid is not selected, the ability to create, edit, and move objects and surface features is constrained only by screen pixels.</p> <p>If an object or surface feature is created with Snap to Grid unselected and then edited or moved with Snap to Grid selected, the object or surface feature moves in increments of the invisible grid but doesn’t actually snap to the grid. This makes it possible for handles to fall between the ruler tick marks, which can be frustrating when you try to align objects or surface features. However, if you move a handle rather than the whole object or surface feature, the handle will snap to the grid.</p> <p>Snap to Grid can be selected and unselected under Preferences Editor dialog and the Design menu.</p>
<i>Zoom-In</i>	<p>increases the apparent scale and size of objects in the view by a factor of two. With each zoom in, the minor tick marks on the rulers represent a smaller unit of measurement. There is a limit to the range of the Zoom-In command; when you reach the limit, selecting Zoom-In will have no effect.</p> <p>Zooming in can also be accomplished by clicking on the Zoom-In tool. Zoom-Out reverses the effect of Zoom-In.</p>
<i>Zoom-Out</i>	<p>reduces the apparent scale and size of objects in the view by half. With each zoom-out, the minor tick marks on the rulers represent a larger unit of measurement. There is a limit to the range of the Zoom-Out command; when you reach the limit, selecting Zoom-Out will have no effect.</p> <p>Zooming out can also be accomplished by clicking the Zoom-Out Tool. Zoom-In reverses the effect of Zoom-Out</p>
<i>New Layer</i>	<p>lets you add a new layer to the Layer List. If you select New Layer, a dialog appears with a text box in which you can type the new layer name. This name will then appear in the Layers Window and become the active layer.</p>
<i>Delete Layer</i>	<p>deletes the selected layer in the Layer List and all the objects that reside in that layer. If you select Delete Layer, you are prompted to verify the deletion</p>
<i>Group</i>	<p>groups all selected objects, treating them as a single object. A grouped object can be moved, copied, rotated. It can only be scaled using the Scale Object tool. It is important to group gallery items with the Group command before copying them to a gallery.</p>
<i>Ungroup</i>	<p>ungroups selected objects that were grouped with the Group command. Once you ungroup an object, all the objects that make up the group remain selected until you click somewhere else inside the view. This means that if you want to change the texture of a grouped object, you can ungroup it, select a new texture, and group the objects again. This only works if you want all objects within the group to be the same texture. It’s a good idea to group staircases before moving them.</p>

It is possible to have groups within other groups. If you ungroup an object but cannot edit it, try ungrouping again.

**Tip:**

The Design menu is available only when a Design Window is active. If the Surface Editor or Walk Window is active, the Design menu disappears.

## Window Menu

<b>Command</b>	<b>Purpose</b>
<i>Design</i>	displays or hides the Design Window.
<i>Walk</i>	displays or hides the Walk Window.
<i>Tools</i>	displays or hides the Tools Pad.
<i>Layers</i>	displays or hides the Layers Window.
<i>Tile Horizontal</i>	positions the active window on top. The Gallery Window is positioned normally, that is, to the left of the other windows.
<i>Tile Vertical</i>	positions the active window on the left. The Gallery Window is positioned normally, that is, to the left of the other windows.

## Hexen II Object Properties Dialog

The Hexen II Object Properties dialog allows you choose settings that affect how objects in your newly created level will look when exported to Hexen II. The settings do not affect the appearance of your level, objects, or textures in the Design Window or the Walk Window.

To view the Hexen II Object Properties dialog as you read this section, drag and drop a Square from the Basic Shapes Gallery into the Design Window. Right-click the square to bring up the dialog.

[Add Objects to a Gallery](#)

[Select a 3D Gallery Object](#)

[Use a Basic 3D Gallery Object](#)

[Create Your Own Custom Objects](#)

[View the Hexen II Object Properties Dialog](#)

[Objects](#)

## Object Properties Object Tab

Dialog box element	Description/purpose
<b>Class</b>	This is a list of all of the objects that are available for you to use to build levels. Choose from this list to create a place holder that will act like one of the possible elements in Hexen II
<b>Attributes</b>	These are the user definable fields for each class item. See the Hexen Code Comments.txt file installed with this program for more details on each attribute and on how to set attributes and combine classes.
<b>Flags</b>	These are flags that can be set to effect the way this class item works.
<b>Levels</b>	These check boxes determine which level the classes appear on in Hexen II. If you check only Deathmatch for a Pot, it will not show up in single player mode.

[Select a 3D Gallery Object](#)

[Use a Basic 3D Gallery Object](#)

[Create Your Own Custom Objects](#)

[Objects](#)

## Object Properties Advanced Tab

Dialog box element	Description/purpose
<b>Geometry Options</b>	
<i>Hollow Geometry: Expand In</i>	Walls in Hexmaker are infinitely thin. For Hexen II, walls need to have thickness. Most of the time, wall thickness is set automatically during the Hexen II export. If you test your level (made in Hexmaker) in Hexen II, and the player falls through floors and goes through walls, you need to use the Hollow Geometry: Expand In or Hollow Geometry: Expand Out tool on that room. This hollowing in does not appear in the Design View but it will effect your level in Hexen II after export.
<i>Hollow Geometry: Expand Out</i>	Walls in Hexmaker are infinitely thin. For Hexen II, walls need to have thickness. Most of the time, wall thickness occurs automatically during the Hexen II export. If you test your level (made in Hexmaker) in Hexen II and the player falls through floors and goes through walls, you need to use the Hollow Geometry: Expand In or Hollow Geometry: Expand Out tool on that room. This hollowing in does not appear in the Design View but it will effect your level in Hexen II after export.
<i>Solid Geometry</i>	Nothing will be in this object while playing Hexen II, it can be solid
<i>Custom Object has geometry</i>	If you are creating a custom object and select Custom in the Class drop-down list under the Hexen II Object Properties Dialog tab, you need to decide if the object needs geometry shapes.
<b>Contains</b>	The items in the contains area, if ungreyed, allow you to fill chests, and badguys pockest with lots of goodies to give to the player when he opens or defeats the foe.

[Select a 3D Gallery Object](#)

[Use a Basic 3D Gallery Object](#)

[Create Your Own Custom Objects](#)

[Add Objects to a Gallery](#)



## **Hexmaker Online Help Guide Introduction**

Hexmaker™ provides everything that you need to create and edit 3-D worlds for Hexen II™. Hexmaker features an easy to use drag and drop interface that lets you work with pre-created content to build Hexen II worlds quickly. You can also use the modeling and construction tools to create your own items and to build structures that extend beyond the pre-created content.

This is an online-help guide designed give you all of the information you need to design and build Hexen II levels. This guide includes information on the product interface, step by step instructions for some of the more common tasks, a guide to designing levels, and details about the product interface.

For more information on Hexmaker, check out the Web Site at [www.hexmaker.com](http://www.hexmaker.com). If you have installation and setup problems, email [support@mcp.com](mailto:support@mcp.com).



## Copyright and Trademarks

THIS PRODUCT IS LICENSED (NOT SOLD) TO YOU BY ITS MANUFACTURER VIRTUS CORPORATION. YOUR USE OF THIS PRODUCT IS RESTRICTED BY THE TERMS OF THE LICENSE AGREEMENT INCLUDED WITH THE PRODUCT. BY USING THE PRODUCT YOU INDICATE YOUR ACCEPTANCE OF THE LICENSE TERMS.

Copyright © 1997 VIRTUS Corporation. All rights reserved.

HEXEN II™ Texture Graphics and Artwork © 1997 Raven Software Corporation. All Rights Reserved. HEXEN II™ and the Raven name are trademarks of Raven Software Corporation used under sublicense.

VIRTUS and the Virtus logo are registered trademarks and Hexmaker is a trademark of Virtus Corporation. Windows is a trademark of Microsoft Corporation. All other brand or product names are trademarks of registered trademarks of their respective holders.

QuickStart guide and on-line help written by David Mullins and Lee Bumgarner and Bob Griswold. Edited by the whole team. Virtus engineers Bob Griswold, Beth Graff, Alan Shaw, Peter Scott, Eric Sage, and Scott Haynes. Marketing John Cooper and Scott Place. Virtus artists Bryan Baldwin, Bert McLendon, John Michel, Scott Sprange, and Geoff Yarbrough. QA Ann Grundstrom, Ismini Boinodiris, and Steve Barber.

Special thanks to Raven and id Software for providing the world with another great game and for allowing us to create an editor based on the game.

qART-Lite is included on this cd-rom by permission of the respective Copyright owner. For more information, upgrades, help, and full versions of these programs, please visit <http://www.3dmatrix.com> or email [info@3dmatrix.com](mailto:info@3dmatrix.com)

qME-Lite is included on this cd-rom by permission of the respective Copyright owner. For more information, upgrades, help, and full versions of these programs, please visit <http://www.3dmatrix.com> or email [info@3dmatrix.com](mailto:info@3dmatrix.com)

AdQuedit is included on this cd-rom by permission of the respective Copyright owner. For more information, upgrades, or help, please visit <http://goldrush.com/~hicks/adquedit/> or email [cjhicks@sfsu.edu](mailto:cjhicks@sfsu.edu)

This is a new secondary document for your project.  
Click Topic (Ctrl+T) to add a new Help topic.

