

Stoneless - the Quake Map Builder

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Documentation for version 1.01

Welcome to Stoneless, Quake map builder for Windows 95. Stoneless was written by David Jewsbury (aka Gooz while Quakematching).

Wait! Before you close this file just read these two little sections: Quick tips and The important stuff. They're short and they get to the point, so you don't have to read the rest of the file.

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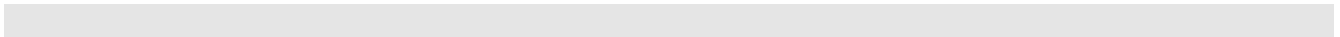
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FURTHER READING

ACKNOWLEDGMENTS

CLOSING



Disclaimer and legal stuff

In the following section, “Stoneless” refers to “Stoneless version 1.”

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Requirements

To design and test Quake levels with Stoneless, you will require

- A high end 486 or greater based PC
- For the included QBSP - a pentium or better
- Windows 95
- Enough memory to run Windows 95 (ie: 16Mb+)
- Registered Quake
- One or more texture wads (an example to start you off is included in the zip)
- DirectX v3

I recommend at least 32Mb of RAM to compile a decent sized level, a Pentium, and a fast hardware-accelerated graphics card running with 16bit colour depth.

Quick tips

If you don't want to read this whole file, just scan over this section to discover some of the advanced features of Stoneless that are not always obvious.

- Hold down **shift** while selecting a brush in a 2D window to selection one below the current selection
- Hold down **control** while selecting a brush to add it to the selection without removing the previous
- Press **insert** while in entity or brush more to create a basic primitive
- Double click a face in the 3D texture window to grab it's texture
- Double click a key in the entity properties dialog to edit it
- Hold down **space** and move the mouse to drag 2d maps
- Hold down **shift** as you call up a texture browser to force the creation of a new one.
- Click and drag the right button in a 2D window to select brushes fully inside the rectangle dragged out
- Hold **shift** as you drag out a partial/full selection area to select both brushes and point entities
- Hold down **shift** and drag the mouse to look around in the 3D camera.
- Double click an entity to quickly change it's classname
- Hold down **shift** as you change the grid with any of the 3 key combinations to change the grid on all windows
- Hold down **shift and control** and select an object in the 3D camera to ignore groups. This way, you can edit an individual brush in a group.
- Hold **shift** while you click the axis limitation buttons - all windows of the current map will be affected
- Hold **shift** while you center and zoom around the selection to zoom all windows
- Hold **alt** while you click a face on the 3d camera in face edit mode to apply the current texture
- Hold **control** and use the arrow keys to move brushes and entities around
- Hold **d** (and possibly **shift**) and click a 2d map to zoom
- When compiling a big level, check memory conservation, to lessen Stoneless' grip on that vital resource
- Hold down button 1 on your joystick to strafe and move around
- Run Stoneless in 16bit or deeper colour for best results
- Don't bevel both sides of a brush along the same axis. Bevel one twice the distance, and skew to get the effect you want
- If Stoneless crashes - try turning off DirectX, and using OpenGL instead
- There is a OpenGL-only version of Stoneless - perfect for Windows NT users and DirectX-haters who don't want to install DirectX. See "The Important Stuff" section for the URL of the Stoneless web site.

The import stuff

The important stuff is the editing - but before you rush off to do that, make sure you have read the quick tips section. And remember to visit the **Stoneless web site** at:

<http://netspace.net.au/~jewsbury/stoneless/index.html>

There you can find the latest updates, and find out about my levels, and less importantly: me. You'll also find links to the best of the Quake community, and a nifty java-enhanced playground for the wayward browser.

Attention **Diamond Stealth3D** users: you must turn 3D acceleration OFF in the options dialog if you want to use Direct3D. This may also be the case for other 3D accelerators that haven't as yet been tested with Stoneless.

I recommend at least scanning over the rest of this file, as it describes many tricks that can improve your map building productivity.

Beating Bugs

Sure, I admit it, there are bugs in Stoneless. There always are in projects of this size. There are a few things you can do to avoid it, though.

The Direct3D implementation in Stoneless is unstable. This is because of incompatibilities with the particular C++ compiler I use. I can't afford a new compiler right now... So unless some kind sole at Microsoft or Watcom can send me some DirectX compatible versions of their compiler (Yeah, I know I'm dreaming), we're all going to have to live with it. It's not that bad - I've used Stoneless for hours on end, and it hasn't crashed, and many people have written to tell me the same thing. But it is there, so save often. It seems to happen after a certain number of faces have been rendered, so it is possible bigger maps will be less stable.

I can ease the problem, though. If you have a 3D accelerated card, try turning Direct3D acceleration off in the options dialog. This goes for Stealth 3D owners, especially.

The other option is to turn Direct3D off completely, and hence avoid the incompatibility problems. **You can still use the OpenGL camera, which is more stable, and functionally equivalent.**

Special WindowsNT information

There is an OpenGL-only version of Stoneless that does not require DirectX to be installed. This is perfect for Windows NT users. Visit the Stoneless web site to find a download point.

The zip includes two .dll files -> these are OpenGL for Windows 95. If you want to run Stoneless under Windows NT, you should delete **opengl32.dll** and **glu32.dll**.

Quake Terms

Brush

Brushes are the basic shapes in the Quake levels. They are the solid (and liquid), texturemapped walls, floors and ceilings. Brushes are also used to make up the moving landscape objects, like doors and bridges.

Unlike Doom, walls must have a depth. While building Doom levels, the walls were defined by simple lines, but in Quake, you must use cuboids, columns, etc.

Use the primitive button on the toolbar to create brushes.

Entity

All objects in Quake are entities. Some have a brushed attached - and occasionally, these brushes move (doors, bridges, etc). Entities like player starts and monsters can't have an attached brush, instead have an origin (ie, a place on the map around which a set volume is centred). You can use the entity tool to move the origin of these entities, or edit their origin key.

Point Entity

A point entity is an entity that has an origin, and no brush attached. You can't change their width, height or depth - these are set by their classname and the .qc file.

To create a point entity, select the entity selector tool, and press insert. A entity with the classname set in the options dialog will appear beneath the cursor.

The easiest way to tell a point entity is from their colours, or by the fact that, when using the entity selector tool, the cursor will turn to a + when over a point entity.


Key

Most entities have a number of keys. These describe the attributes and properties of the entity. All keys have a name/value pair. The name is the type of key (classname, origin, speed, sounds). Values can be numbers, and sometimes letters, depending on the key name.

The most important key is the classname. The value of this key describes the entity's basic class - be it a monster, player start, or any of the many classes described in your ents.qc file. Just load up ents.qc in a text editor to find out what is available. Standard Quake has many classes, and on top of that, add on packs (like CTF and Team Fortress) can define more. Plus, Stoneless has a few special classes defined internally. See Special classes.

Creation

Brushes

Brush creation is powered by the primitive button on the toolbar (). Upon clicking, a menu will drop down when you press it. Choose one of the primitives from the menu, and drag a position on the map with the left mouse button. After the brush is created, you will be taken back to the brush editing tool.

Note: you can press escape, the right mouse button or click the mouse outside of the window to go back to brush editing tool.

Alternatively, you can press insert while using the brush editing tool to create a simple cube below the mouse cursor.

Changing the number of faces

The number of faces used to create cylinders, spheres and pyramids is specified by the edit box on the right panel, under the "Sides:" label. You cannot enter a number less than 3, or greater than 30.

Entities

To create an entity, select the entity selection tool, and simply press insert. A new entity will appear below the mouse cursor, of the type indicated in the options.

Entities bound to keys in the options dialog box can be created in a similar fashion (see Options.)

The Editing tools

General

These commands apply to all editing modes.

Use the keys [and], or < and > or even a and z to size the grid. Hold down **shift** to size the grid on all windows of the current map, not just the window in focus. You can turn it off completely by clicking the grid status text on the bottom status bar.

Use the arrow keys, or the scroll bars to move around maps.

Hold down **space**, and drag the mouse to move the window. This also works while using a tool such as the cubiod creator.

Use the - and + or s and x keys to zoom in and out. Or, hold down 'd' and click on one of the 2d maps to zoom in on that point. Hold **shift** and **d** and click to zoom out.

You can turn off snap to grid by clicking the grid status text in the 2d map's status bar. This will also turn off snap to angle, so you can rotate at any angle. Alternatively, use View/Grid menu commands.

Brush tool

Brush mode is the most useful of the editing modes. With this tool, you can create, manipulate and delete brushes. Press **Ctrl-B**, or select Modes/Brush from the menu bar.

The most common way to select a brush is by clicking inside it. If smart checking is enabled, Stoneless will attempt to pick out the most applicable brush, which is usually the topmost. When a brush is selected, it will turn red, and an editing rectangle will appear around it (see diagram 1).

Perhaps an even more powerful method of selection is to click the brush in a 3d view.

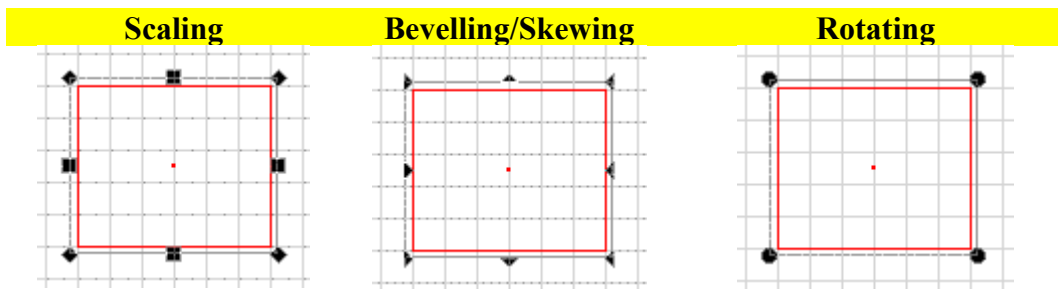


Diagram 1

There are 3 editing rectangles, each offering different manipulating operations. Click the selected rectangle again to switch operations.

Operation	Purpose
Scaling (rectangles)	Drag any of the 8 handles and the brush will follow...
Bevel (corner triangles)	The 4 triangles at the corners of the second editing rectangle allow you to bevel the brush. Bevelling is similar to skewing, except only one corner will move. Currently, only horizontal bevelling is supported - you must rotate 90° to bevel vertically.
Skew (side triangles)	The 4 triangles in the sides of the second editing rectangle allow you skew. This is like moving, except one side is anchored and does not move.
Rotating	The rotating handles rotate the brush around the corner opposite to the handle. Note: you can hold shift to rotate around the center of the brush.

You can also translate (move) the brush while any of the editing rectangles are displayed simply by clicking within the editing rectangle and dragging.

Advanced selection

Hold **control** and click a brush to select that brush to the selection, without clearing the previous selection.

Very important: hold **shift** and click a brush to select one that is below the current brush. This is very useful to select a brush hidden behind another. You can do this again to select a brush even deeper.

Click and drag outside a brush to drag and partially inside rectangle. The editor will then select any brush that is partially inside that rectangle.

Click and drag the right mouse button outside a brush to select all brushes that are fully inside the rectangle dragged out.

Creation/deletion/clipboard

Press **insert** to create a very simple cuboid at the cursor. This is quicker than the primitives menu on the toolbar, but less powerful.

Press **delete** to delete all of the selection.

The clipboard functions are all accelerated to the usual key-strokes.

Press **Ctrl+X**, or select Edit/Cut from the menu bar to cut the selection to the clipboard.

Press **Ctrl+C**, or select Edit/Copy from the menu bar to copy the selection to the clipboard.

Press **Ctrl+V**, or select Edit/Paste from the menu bar to paste what's on the clipboard into the map.

Press **Ctrl+D**, to create a single duplicate of the selection at a small offset.

Ctrl+H, **Ctrl+J**, and **Ctrl+K** will flip the selection about the X, Y and Z axis respectively.

Property edit

Press **Alt+Enter** to bring up the properties of the selected brush. You can add and change keys, and set the Stoneless flags.

Popup menu

Right click a brush to quickly bring up a small menu of useful commands such as flip, clipboard commands and duplicate.

Entity tool

The entity tool is much simpler than the brush tool, but is also very necessary. It allows you to quickly and easily edit the origin key of the entities that require it. These are weapons, ammo, powerups, monsters, player starts, etc. It will have nothing to do with entities tied to a brush - you must edit those with the brush tool.

Simply click and drag the left mouse button to translate (move). The right mouse button will bring up the entity properties dialog.

Press **insert** to create a new entity at the cursor, or use the keys bound in the options dialog (see options) to create entities.

Touch up mode

Touch up mode is a powerful vertex manipulation tool. It allows complete low level control over individual vertices, without the hassles of keeping points on planes and convexity.

To enter touch up mode, first select a brush using any of the normal methods, and go to Modes/Touchup or press **Ctrl-U**. The whole map, except for the selected brush should turn to wireframe in the 3d view, and little blue boxes will appear at the vertices in the 3d view. Selected the vertices in the 3d view you wish to move, and drag them by holding down the **right mouse button** in one of the 2d maps.

Touch up menu

When you enter touch up mode, an extra menu will appear in the menu bar. This allows you to select all vertices on the selected brushes, or invert the selection.

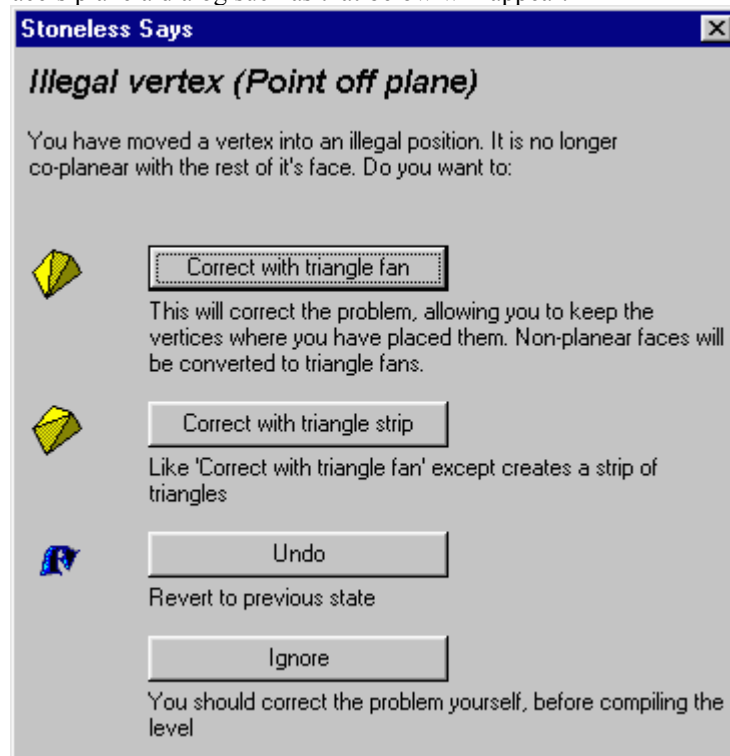
Selecting multiple vertices

The easiest way to select multiple vertices is to drag out a selection area outside of any brushes. All vertices within that area will be selected.

Alternatively, hold **control** and click vertices on the 3d camera.

Point off plane errors

If you move a point off its face's plane a dialog such as that below will appear:



Four paths now face you:

Correct with triangle fan

This will correct the error by turning the invalid planes into meshes of triangles, in a fan shape such as that shown here:



Correct with triangle strip

This is similar to correct with triangle fan, except a strip of triangles is created. There is very little difference between these two, and the distinction is only provided for special circumstance. If you can't decide which one to use, just choose triangle fan.

Undo

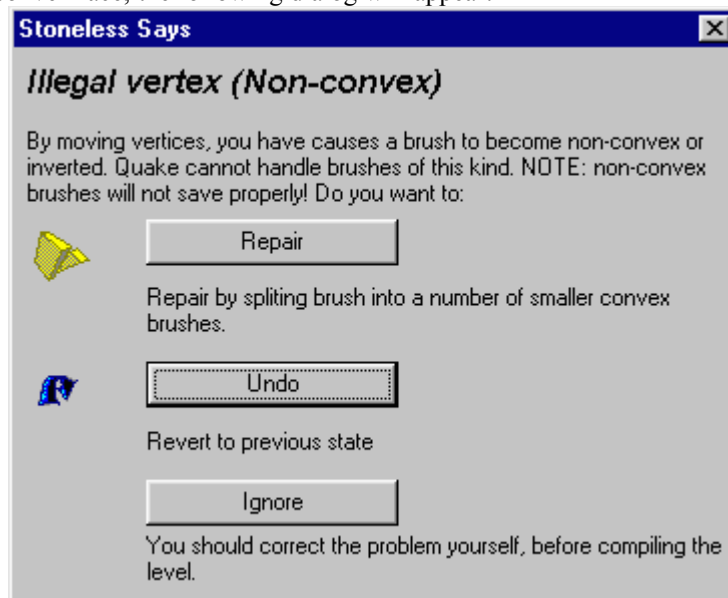
If you have decide you don't like the changes you have made, or want to try again, click undo, and everything will be returned to how it was before

Ignore

If you want to fix the problem yourself, click ignore and Stoneless will not attempt to fix it. Be careful though! Don't attempt to modify the brush or perform CSG operations while the vertex is still off it's plane, as this may have disastrous effects. If you want to check if you have corrected the problem, you can use the error checker (Tools/Check map). Also note that if you save the map while you have point off plane errors, it will not be saved properly! This is not the cause of the error "point off plane" errors reported by qbsp - brushes with points off plane will not be completely saved to .map or .xmp files, but they will compile properly. You will be warned if you attempt to save invalid brushes.

Non-convex errors

If you have created a non-convex face, the following dialog will appear:



Repair

Stoneless will attempt to correct the problem automatically, splitting the brush into smaller valid pieces, which when combined make up the exact same shape. In the current version, this may not work for some cases. If Stoneless produced a result you are not pleased with, just Undo (Edit/Undo).

Undo

This will return the brush to how it was before you attempted to move it's vertices.

Ignore

If you want to correct the problem yourself, click ignore, and Stoneless will not attempt to correct the problem. You should attempt to correct it immediately, though, as if you attempt to modify a non-convex brush, or perform CSG operations, it could have disastrous effects! Also, non-convex brushes will not save properly. If you save a non-convex brush and load again, you will see that the brush is only a shadow of its former self.

What is ...?

Vertices

Vertices are the corners of the brushes. In other words, these are where the planes of the brush meet.

Point off plane errors


A plane is a 2d dimensional shape - that is, it is infinitely thin. So, it is very possible to move a vertex off this slice of space, creating a 3d shape when the points are connected. Quake can't handle this, and qbsp will cancel with an error if it comes across this error.

Convexity

Because of certain optimisations, Quake cannot handle faces that are not convex. These are faces which curve back on themselves, or as Michael Abrash put it - change direction more than twice. Sounds confusing? Don't worry, Stoneless handles it automatically.

The grouping scheme

Stoneless allows you to group objects to make editing easier. Simply select a number of brushes and click the group

button () from the toolbar to group those objects together. You can group groups. After this, the entity tree dialog will show a new node named "Groupfather" with the grouped object below it.

To ungroup, select the grouped object and click the ungroup button () from the toolbar.

Grouped brushes will stick together when translated, rotated, etc. However, sometimes this is unwanted. In these cases, you can select a individual brush in a group, without effecting the other brushes in the group, by holding **ctrl+shift** and left clicking on the brush in the 3d camera.


Grouping are also very useful for entities such as doors which are made up of a number of brushes. See Entity Properties. If, for example, you want to create a door made up to two brushes, group these two brushes, and change the groupfather's classname to func_door.

Constructive Solid Geometry (CSG)

There are two CSG algorithms implemented in Stoneless. Both alter brushes in a very complex way, allowing true 3D editing, rather than the extruded 2D editing methods the brush tool provides. Don't be confused by the title, though, they are very easy to use.

Subtraction

The most useful is CSG subtraction, available via Operate/CSG subtraction in the menu bar, or from the subtraction

button () on the toolbar. This will punch out the selection from the rest of the map, and allow you to create many things, including windows and rounded passages.

For example, to create a square window, simply create a brush where you want the window to be, solid as the window is hollow, and click the subtraction button. You can now delete the brush created, as it is no longer needed.

Intersection

The other CSG tool is intersection. Choose Operate/CSG intersection from the toolbar. This creates a new brush, which is the intersection of the selection. That is, the new brush will include only those areas that are in both selection brushes. You must select only two brushes to use CSG intersection, but these may be groups. Intersection is often used to create more complicated objects from groups of primitives, or clip back objects to a bounding cuboid. It is very easy to create half a column, for instance, or clip a pyramid to fit into a certain shape.

Hollow

Hollow (Operate/Hollow) is a special form of CSG subtraction that will hollow out the selection, creating a hollow object with the given wall width. This only works with convex shapes - so, if you select a few brushes, and attempt to hollow them at once, it may not come out right.

A negative wall width will result in a hollow shape one wall width larger than the original.

Of and about Textures

Texture choice is an extremely integral part of Quake level design. That is why Stoneless pays close attention to the presentation of textures and the texture interface.

Wad files

Textures are archived in files using id's WAD2 format. If you don't have any .wad files, you will not be able to texture your levels, and will end with 3d checker boards in Quake. A sample wad file is supplied with Stoneless, but serious authors will require a much larger a much more substantial archive. You can create custom textures with any commercial strength graphics editor, and place them in wad files with a wad modifying utility, or using Stoneless' built in tools.

The default wad file

You can set the default wad file in File/Options. This is loaded every time you start Stoneless. If you only use one wad file, you should set the default to this. If you use many wad files, it might be best to set this to a small one, as it is loaded every time you start up.

Note: only the wad directory will be loaded. The actual textures are not loaded until needed, so very little memory is used if this wad file is not used. (See the memory analysis for exact values)

Linking a wad file

Every map has one or more linked wad files. When you create a new map, it will be linked to the default wad. Stoneless saves the name of the wad files in the “wad” key of the worldspawn, separated by ;’s. To add or remove wad file from a map, you must choose Tools/Wad Manager... (or “Multiwads” from the texture browser) rather than editing the worldspawn directly. Any textures used in the map that aren’t in any of the linked texture wad files will now appear as a checker board pattern in the 3D camera.

The Current texture

The Current Texture is the texture that will be applied to new objects, or when you press the Apply Texture button. There is one current texture per wad, and only one current wad per map. A preview of this texture is shown on the bottom right of the Stoneless window.

The Texture Browser

You can call up the texture browser from the menu - Window/Texture Browser, by pressing **Ctrl+T**. Alternatively click on the picture of the current texture in the bottom right of the window. This will bring to the front all the texture browsers belonging to the appropriate wad files, creating new browsers when necessary.

Hold down **shift** as you call up a browser to assure a new browser is created.

Note, to the very right of the window is a single column browser that cannot be closed. By default, this displays the most recent textures used, but by right clicking over it, you can change modes.

There are a number of texture filters in the browser. Click the tabs or right click in the texture list to change modes. Click on the texture wad names on the bottom of the browser to swap between wads.

All filter

All of the textures in the wad.

Recent filter

The 20 most recent textures selected. Very useful while using four or five textures repetitively.

Used filter

Every texture used in the map.

Favourites filter

This one’s customisable. Put all your favourites in here, and have them always close at hand.

Cached filter

This filter shows all textures currently loaded in memory. If you look closely, you will notice that it map not include the textures actually used on the map.

A pull down list along the bottom of the texture browser offers a few different sorting methods

Alpha

Sort the textures alphabetically by name. Pay no regard to the graphical content of the texture.

Brightness

Sorts the textures by brightness, brightness first.

Red / Green / Blue

Sorts the textures by content of these three textures. The textures with the greatest red, green or blue appearance will appear near the top.

Texture size list

To the left of the sorting list is another pull down list. This allows you to change the size of the textures on screen. Usually 64*64 is a good size, but if you want to see more textures, or see the bigger texture in greater detail, this list can be useful.

Texture Size

To the left of the texture size list is two numbers. They are the width and height of the actual texture. Note: this is not the size of the texture on screen, but the size at which it was drawn.

"To back" button

Press the "To back" button to push the texture browser behind all other windows, and thereby revealing all map windows again. When you call up the browser again, it will come back to the front.

Searching

If you press a letter key while in the textures list, you will be taken to the next texture beginning with that letter. This can make it easy to jump around big wads.

Wad manipulation tools

Buttons in the texture browser allow you to add, delete and modify textures from the texture wad. These all alter the actual wad file on disk, and can not be undone.

Insert

The insert button brings up an open dialog. If you select a .pcx file from this dialog, it will be inserted into the wad file. The sub mip's are automatically generated. If necessary, the palette is matched to Quake's palette.

Note: only 256 colour .pcx files are supported

Export

Export saves a texture to a .pcx file.

Remove

This button removes a texture from the wad file. This deletes the texture from your disk!

Alter

Alter allows you to replace the selected texture with a .pcx file that is of the exact same size. This is faster and more memory efficient than insert, so should be used if possible.

Name . . .

The Name... button allows you to change the name of the selected texture. By default, textures loaded from .pcx files will be named after the filename.

Altering texture in 3d party software

The easiest way to alter textures is to export them to a temporary .pcx file, then open this up in your favourite graphics editing software. Alter it, then save back to the .pcx file. Now click "Alter" to load the new texture from the .pcx file and replace the old.

Other texturing tools

To grab a texture from a brush, simply double click the face in the 3D camera window with the texture you want.

The QC files and entity declarations

The default ents.qc file describes all entities implemented in Quake. Stoneless uses this to create the entity menu in the entity properties dialog, and to name the spawnflags. You can edit this to include entities defined in add-on packs for Quake (I have included a .qc file for Threewave's Capture the Flag, one for the Hipnotic add-on pack entities, one for Team Fortress and one for the custens pak).

Linking a QC file

Qc files are managed in much the same way as wads, except only one .qc can be linked to the map. The key that Stoneless uses to save the linked qc file is "XMPqc." This is not written to the .map. To change the .qc file linked to the map, select Tools/Set QC, and select it from the dialog that appears.

QC format

Stoneless uses the same .qc format as does Quake, with a small, optional addition. For an entity that should be linked with a brush this should be:

```
/*QUAKED[whitespace]entityname[whitespace](colourRed[whitespace]colourGreen[whitespace]colourBlue)
[whitespace]?[whitespace (usually CR/LF)]
~[whitespace]defaultStonelessFlags[whitespace (usually CR/LF)]
Description[whitespace (usually CR/LF)]
*/
```

For an entity destined to have an origin and dimensions:

```
/*QUAKED[whitespace]entityname[whitespace](colourRed[whitespace]colourGreen[whitespace]colourBlue)
[whitespace](minx[whitespace]miny[whitespace]minz)[whitespace](maxx[whitespace]maxy[whitespace]maxz)
[whitespace (usually CR/LF)]
~[whitespace]defaultStonelessFlags[whitespace (usually CR/LF)]
Description[whitespace (usually CR/LF)]
*/
```

If you can't follow this, just copy and paste from ents.qc, and change the bold parts from above. Don't worry too much about the whitespaces - in Stoneless at least, they are only enforced before and after the brackets.

The line beginning with ~ is an extension for Stoneless and is optional. You can set the default Stoneless flags - currently bit 0 is draw entity links. Just type the number in ASCII format.

Compiling

Stoneless offers a quick and easy way to compile levels. To use it, you will need qbsp.exe, light.exe and vis.exe in Stoneless' directory, and quake.exe in the directory set in the Options dialog box.

Most of the action takes place in this dialog box:

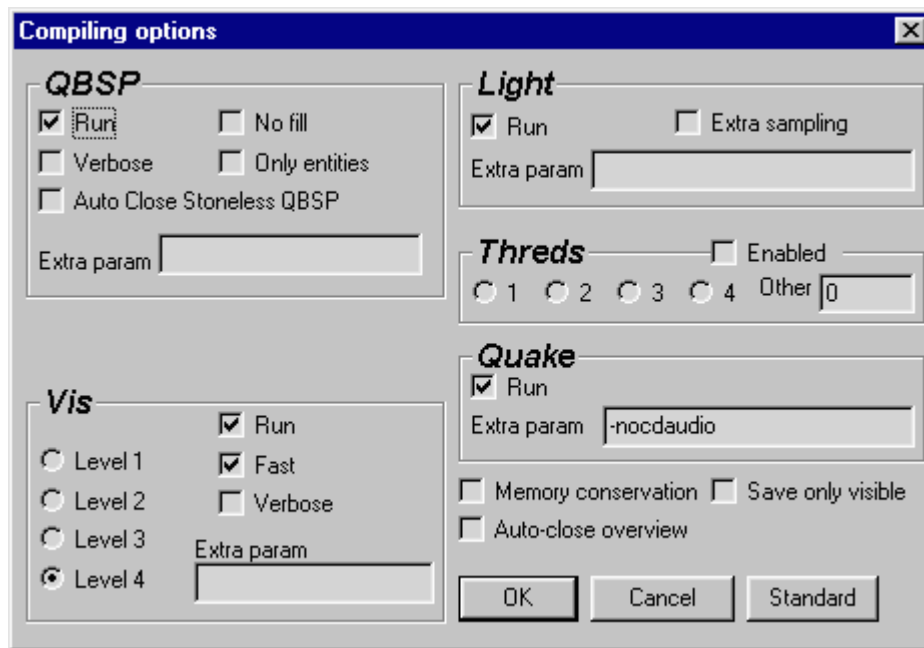


Diagram 4

The dialog is split into 4 parts, each dedicated to a different process in the compiling procedure.

Common

All processes have these two things in common: a Run checkbox and an extra param edit box.

Check the Run box if you want the process to be run. Note: you can test levels without running light or vis, but you must run Qbsp.

The Extra param edit box offers support for features Stoneless doesn't know about. Just type something in there, and it will be appended to the command line. Usually, these are all blank.

Qbsp

Qbsp generates a basic .bsp file from the .map file, creating bsp trees and filling the inside of the map as necessary.

The verbose check box makes Qbsp write much more information to the screen, allow you to see exactly what's going on. Usually qbsp fills the level and removes all the redundant faces from the outside of the map. No Fill will disable this. You cannot vis a level if you have not filled it.

Use Only Entities if you have changed entities in the map, but not the brushes. This is much faster, and useful in the closing stages of editing, while you are perfecting the difficulty curve.

Auto Close Stoneless QBSP should only be used with the standard qbsp that comes with Stoneless. It will make sure the qbsp window closes immediately after compilation is finished.

Light

Light creates all the lightmaps for the .bsp, creating all the shadows and areas of brightness in the level. You need to place in the map entities like "light" and "light_torch_small_walltorch", and all the others that begin with "light" to define the light sources. Light.exe does the rest.

Always use extra sampling for your final output. This takes 4 times as long to complete, but the lighting will look 4 times better. It is not required for mid-development testing.

Vis

Vis creates the potentially visible set (PVS) for the level. This is what gives Quake its incredible speed. During development, it is not really necessary to run vis at all, but with Fast selected, it is just that.

Vis without Fast is almost always the longest of the three processes - for final output it can often take 4-5 hours, even on top of the range Pentium II computers.

Vis can run in 4 levels, set by the radio buttons. Level 1 is the fastest to compile, but you will have a low framerate while running the level in Quake. You should use level 4 for the final output, if you can wait it out. (This can take a very long time - vissing the level "Sir Mayard and the Mountain" took 6.8 days out of my PentiumPro)

Fast should be used during development, but never for the final output. With this set, vis runs very fast, but you will get grey panels and a low frame rate in Quake.

Verbose makes Vis more talkative - printing its status to the screen.

Threds

If you're using WindowsNT and have multiple processors in your system, use threds to change the number of threds used by the 3 compiling programs. If you're using Windows 95, or don't know what threds are, just make sure the enabled checkbox is not checked.

Quake

If Run is checked, Quake will be launcher with your level, allowing you to test it.

If your level uses a Quake add-on (eg, a new monster), you can use the extra param edit box to set a -game value. That is, if you installed a Quake addon in the /quake/spider directory, you can type "-game spider" into this box to make sure Quake uses the spider monster. I always use the option "-nocdaudio" because I like to listen to CDs while I design.

Without this option, Quake will stop the CD and skip to the start of another track.

Other options

When memory Conservation is checked, Stoneless will shut out all the texture and 3D camera features, effectively giving most of its memory back to the system. Memory is a precious resource, and more of it will make all 4 processes run much quicker. The disadvantage of this feature is that you cannot use Stoneless while the level is loading, and you will have to wait while the textures and Direct3D load up again when compiling is finished. Stoneless will disappear while compiling, until you close the Compiling overview window.

The Save only visible option will not write invisible brushes and entities to the map file, and so they will not be compiled. Using this option while half of the map is hidden can dramatically speed up compilation.

Check Auto-close overview to automatically close the overview window when compilation and testing has completed.

Compiling overview window

After you press Ok, compilation will begin. This window will appear:

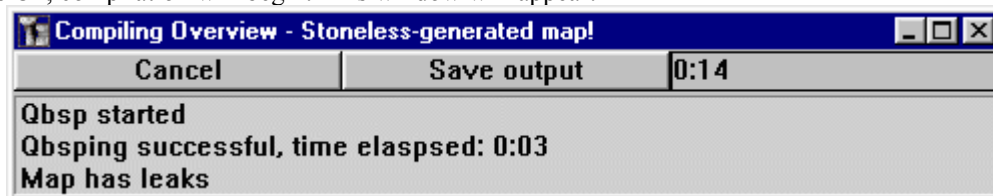


Diagram 5

This window gives you an overview of the process, showing you the times elapsed and important events.

In the upper right is the time elapsed during the compilation.

To the left of this, the Cancel button is as useful as it sounds. The current process will be cut short and no more processes will begin.

Save output

Click the save output button to save a detailed report of the compilation process - included a description of your computer and all parameters used.

“Map has leaks”

Quake levels must be fully enclosed. That means all entities must be enclosed by solid brushes (not water, or teleporter brushes). Don't do what I did with my first level and put your trigger_relay's outside the level and then spend days searching for a non-existent leak - everything must be inside.

If it's not - you'll get the message “Map has leaks” in the compiling overview window. Qbsp will generate a .pts file, and vis will not run (it will complain that it can't find the .prt file). It is vital that you seal all leaks before distributing your level - there is nothing worse than a Quake level that hasn't been vised.

Thankfully, there's one great tool built right into Quake for helping with leaks. At the console, while you are running the level, just type “POINTFILE” and a whole lot of dots will appear in the map. Don't worry if Quake can't load the whole file - you shouldn't usually need more than 2000 or so. (If this isn't enough, contact me - I can help). Follow the dots until they pass through a gap into the outside of the level, and seal up that gap. Now compile again and hope you haven't got any other leaks.

It's a good idea to fix leaks as soon as they appear. The more complex the level, the harder it is to find leaks. I know it's boring, and inspiration is a hard thing to control, but... Hey, come on, this is the last and only functional constraint of Quake level design, be glad they're aren't more.

Compile backup

Whenever you compile, a backup is created in the file autoback.xmp in the Stoneless directory. If something goes wrong, it can be very useful.

Entity Properties

Right click on any entity (or press **Alt+enter** while a brush or entity is selected) to bring up the following dialog:



Diagram 6

This dialog allows you to alter the style and functionality of the entity.

You cannot edit the properties of multiple entities. However, if you wish to create a door, or train, etc with multiple brushes, select them and group them, and then edit the properties for the group.


Entityname

Quake doesn't use this field. It is purely for helping during the editing process. Call your entity anything you like, or leave it empty. It can make it easier to tell entities apart, and find them with the find dialog.

It can also help structure your level by reminding you of the entity's purpose - for example "Surprise Ogre," "Extendable bridge" or "Countdown trigger." This can be very useful if you use the entity tree.

Classname

All entities must have a classname. See Keys in the Quake Terms section for more information.

Note the  button. Press this, and a menu will pop down, displaying all the entities (see diagram 5). The special section has these entries: unknown, templateClass, templateInstance, layer, hidden, embed, and brush. Layer, hidden, unknown and embed are meant for the internal workings of Stoneless - you can use them, but it is not advisable for novices. templateClass and templateInstance are used for templates - see the templates section.

The brush class will not print any of its keys to the Quake map file. Use this to make unmoving brushes, without those "... is not a key" messages in Quake.

To avoid entering the entity dialog, a quicker method of changing classnames is by double clicking the entity in the 2d map. A menu, exactly as in the entity dialog will appear.

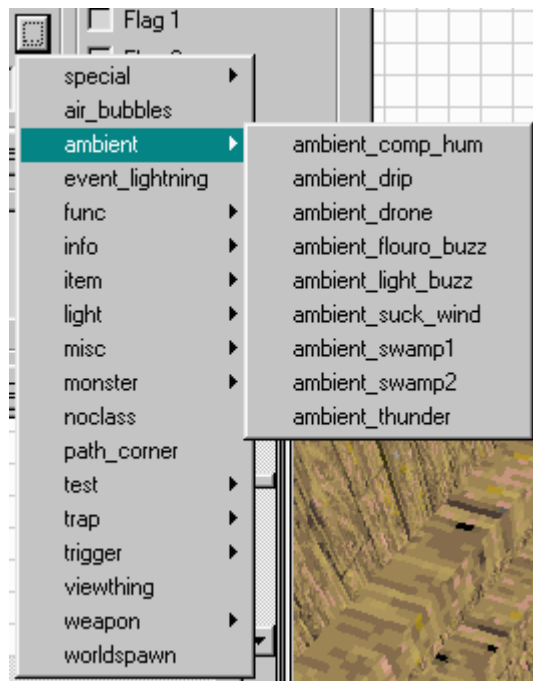



Diagram 7

You don't have to use this menu - just type into the edit box if you find that easier. There is a little indicator that looks like  which will appear if Stoneless recognises the name you have typed in.

Origin

You can position the entities exactly by changing the origin in these three fields. The first field is X (horizontal position), the second Y (vertical position) and the last Z (depth).

Click the no origin button to remove the origin key. This should only be used if the entity has a brush attached.

Keys

In the **Keys** box is a list of all the keys effecting this entity. Click Add Key to add a simple key, which you can edit later. Click Delete Key to remove the selected key.

Double click a key in the list to edit it.

The copy and paste buttons can be used to copy keys between entities.

If you don't want the key to be saved to the Quake map, precede the keyname with "XMP." The key will be saved in .xmp extended maps, but won't be compiled in qbsp. For example, you can put a "XMPauthor" key in the worldspawn, "XMPfinishedDate," "XMPcompileTime," etc...

Spawnflags

Click the More>>> button to show the extended version of the dialog, as below:

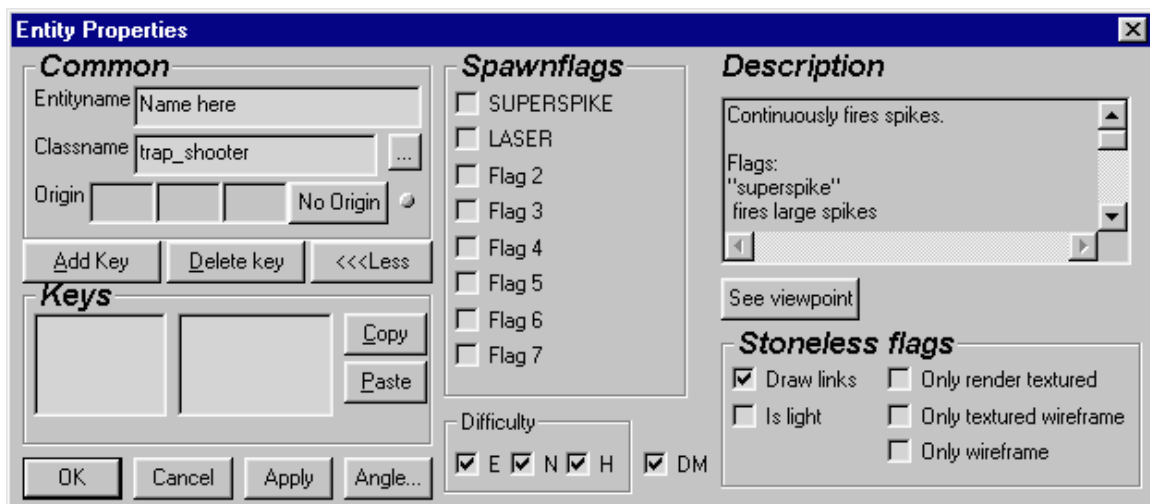


Diagram 8

The spawnflags allow you to change some of the entity's attributes. Their effect depends on the classname of the entity involved. For example, "trap_shooter"s have 2 spawnflags - superspike and laser.

All entities have 4 common flags - these decide whether the entity appears in the 3 difficulty modes and in deathmatch. E stands for easy, N for normal, H for hard and nightmare. Check the DM box if you want the entity to appear in deathmatch modes.

Note: these flags do not apply to brushes. However you can create a func_dm_only to make sure the brush doesn't appear in deathmatch.

Description

The description is taken straight from the .qc file and can be helpful to describe what the spawnflags and keys do.

Stoneless flags

The Stoneless flags section has a few flags that relate only to Stoneless' operation. They do not effect Quake in anyway. They are saved in the XMPstoneflags key.

The Stoneless flags are:

Draw links - Set this if you want to see a link between this entity and its target to targetname pair.

Is Light - set this to use this entity as a light in the D3D and Quake lighting previews

Only render textures, Only textured wireframe, Only render - these flags allow you to force the brush (and all of its children) to be rendered with the specified quality. This can be useful for forcing non-active layers to appear as wireframe in the 3d camera, speeding up rendering.

See Viewpoint

The See viewpoint button will shift the 3d camera to directly above the entity, looking along its line of sight. This can be very useful to see a preview of what players will see as they spawn on a info_player_start or info_player_deathmatch. It is even more useful when used with info_intermission entities, as it allows you to fine tune the pitch, roll and yaw angles, and see the result.

Angle...

Click the angle button to bring up a small dialog allowing you to set the entity's angle. Click anywhere on the circle, on the 6 buttons, or enter a value in the edit box to change the angle. The angle dialog uses the same coordinate system as the XY view.

After you assign an angle to an entity with an origin, the small triangle will appear in the entity in the 2d maps pointing in the direction it will be facing.

The Layering scheme

Stoneless maps are split up into a number of layers. These layers can be hidden, or disabled. They are also useful for keeping areas of the map separate, and easily selectable.

The layers list

Choose Window/Layers List create a new layers list or bring an existing one to the front. Hold down shift to force a new list to be created.

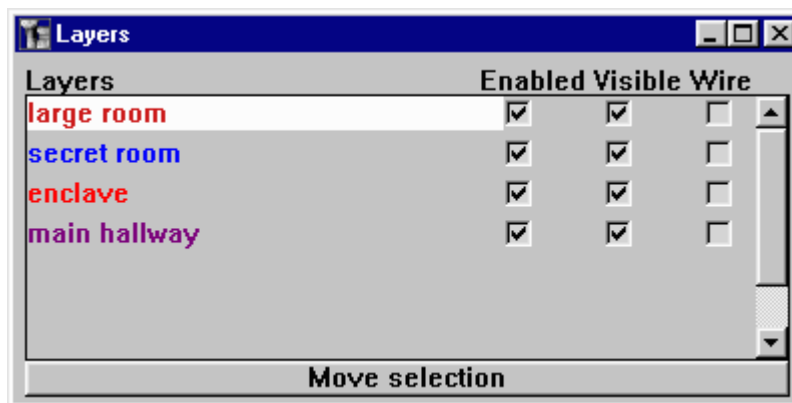


Diagram 9

Right click a layer in the list to edit its name, and any other features.

This allows you to select all the entities and brushes in the layer, add them to the selection, or see the properties of the layer. The layer name is the same as the entityname in the properties dialog.

The current layer will appear with a white background. All created entities and brushes will be placed into this layer.

Move Selection

The Move Selection button moves everything selected into the selected layer.

Quick Layer List

On the right of the is a pop down list containing all layers in the map. The current layer (the one into which new brushes and entities will be placed) will be the one selected.

The Enabled, Visible and Wire checkboxes

These checkboxes describes the layer's enabled and visibility status. Invisible layers will not appear on the map, and disabled layers cannot be selected. If a layer is not enabled, but is visible, it will appear grayed out in the 2d views, and will appear in the 3d camera. While you can have enabled and invisible layers, this is probably not a good idea.

If the wire checkbox for a layer is checked, that layer will only ever be rendered in the 3d cameras as wireframe.

Note: if the Save only visible is checked in the compile dialog, invisible layers will not be compiled and saved into the Quake map. This is a very useful way to cut down on compile times.

Entity Tree

The entity tree shows the map from a different viewpoint. It makes it easy to see how your map is layed out, and the internal tree used by Stoneless.

You can drag and drop entities between layers and groups, delete them, rename them or preform some common functions

Buttons

Update

The entity tree isn't update automatically when things are changed. You have to press update to make sure the tree is up to date. If it's not updated, you may crash the program, or alter brushes in undo memory, rather than on the map.

Properties

Click properties to bring up the properties of the selected entity.

Filters

There are 4 filter available in the entity tree:

Show hidden - check this to include hidden entities in the tree

Show disabled - check this to include disabled entities in the tree

Only point entities - check this to only include point entities in the tree, ie no brushes

Only named entities - check this to only include entities with entityname's in the tree.

Renaming entities

To change the entityname of entity in the tree, click it again, as you would change the name of a directory in Explorer.

Context menu

Right click an entity to bring up a context menu with these commands:

Show viewpoint - same as “show viewpoint” in the entity properties dialog

Zoom and center - zooms and centers on this entity in all 2d maps

Select - selects this entity

Add to selection - adds this entity to the selection

Set as leading - set this entity as the leading entity

Templates

Templates are a very useful feature. It allows you to have multiple “instances” of one “class” over a map.

What’s a class? A class is a group of brushes, for example, a light fixture. It does not appear on the map.

An instance is what appears on the map. It looks exactly the class, except maybe rotated or scaled.

So what’s the advantage? Well, if you have multiple instances tied to the same class across the map, and decided you wanted to change how they looked, instead of having to change them all, you only have to alter the class!

Here’s an example:

Imagine a hall full of columns. Create a class containing a simple column primitive. Now insert 5 to 10 instances across the hall. What, now, if you decided that each column should have a decorative base? The answer is to simply edit the class, and add a base. When you next compile the level, all columns will have that base.

Needless to say, this is very useful, especially for big maps.

Classes

To create a class, put down some brushes as per usual, but preferably near the origin. Now select them and change the groupfather’s classname to templateClass. The class will appear in the list at the bottom of the right control tray.

To alter the brushes in a templateClass, double click it’s name in the class list. To return to the map, select no brushes and go to Operate/Set as leading.

Inserting an instance

To insert an instance of a class, go to Tools/insert template instance. This dialog will appear:

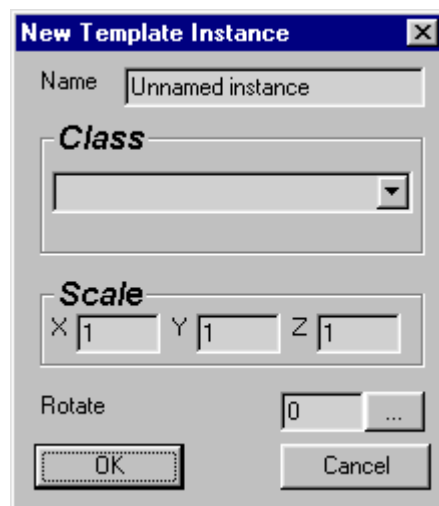


Diagram 10

Fill in the values, and select a class from the drop down list and an instance will be created in the middle of one of the 2D maps. The rotate field is one the XY plane, like the angle keys for monsters, etc. An entity with a classname of templateInstance will be created.

To change the class of an instance, change the XMPclass key in the template.

To see the brushes inside instances, make sure View/Draw templates is checked.

Other tools

Edit/Find Entity

The find dialog will search all the entities on the map for key names and values. If the use checkboxes beside the two edit boxes are checked, Stoneless will use the appropriate data in the search.

All entities fitting the criteria will be selected.

Edit/Find Texture

The find texture dialog will select all brushes in the map containing the choosen texture. To pick a texture, select it through the texture browser in the usual manner, then click on the picture of the texture in the dialog.

Edit/Replace Texture

Replace texture will change all occurances of a certain texture to another. Use the same methodas with the Find Texture dialog (see above) to select textures.

Tools/Purge Redundant Files

Purge redundant files closes all files no longer being used. This can free up a lot of memory. Select Windows/Open Files... to see what files are open.

Operate/Matrix

This will alter the selected with a 3x3 matrix. If you don't know much about matrix math, most of the applications of this are available using the brush editing tool.

Operate/Scale/Flip

This allows you to scale or flip around a certain point on the selection. The scaling function is identical to dragging the scaling handles with the brush editing tool, but allows exact precision.

Operate/Show temp. hidden

This will show all entities temporary hidden in the hidden classname.

Operate/Set as leading

The leading entity is the first one drawn. The only other entities drawn are children of the leading entity. Usually this is the map - but, you can set it to be a group to edit that group individually. Select the entity you want to become the leading entity first.

To make the map the leading again, go to Operate/Set as leading while nothing is selected.

Tools/Get Info

Get info brings some information about the level, including number of brushes, entities, lights and deathmatch starts. It also contains a lot of information about the .bsp file, if it exists. The dates are all in day/month/year format, because if you haven't guessed yet, I'm Australian.

Tools/Insert layer

Adds a primitive layer to the layer list. You can then double click it to edit.

Tools/Density Analysis

The density analysis shows an overall view of the density of brushes in the map. The red areas are most dense, and it is here where you will get the slowest frame rates in Quake.

Tools/Memory Analysis

Memory analysis allows you to see a quick overview as to how much memory Stoneless is using. This doesn't include everything! Memory used for Direct3D, for example, is not included.

View/Zoom to Fit

Fits the entire map in the 2d views.

View/Center around selection

Moves the 2d views so that the current selection is in the center.

View/Center and zoom

Moves and zooms the current 2d map to most optimally show the selected brushes. Hold **shift** to make this apply to all 2d maps.

View/Draw entity classnames

Show entity classnames will draw the classname of every point entity above it in the 2d maps. These can often get in the way, so it is not recommended to keep this on, but it can be occasionally useful when placing and optimizing entities.

View/Draw light radius

Draws the light radius of every light in the 2d maps. Like Draw entity classnames, this can sometimes get in the way.

View/Draw templates

Draws the brushes within each template instance. You may want to keep this on always.

Help/Keylist

The keylist will display a quick list of all the keys and their effects in Stoneless. This information comes straight from the keylist.txt file. If you want to add notes to this, just edit the keylist.txt.

The 3D Camera

OpenGL vs. Direct3D

OpenGL and Direct3D are both what we programmers call API's. They are the universal communic between the program and hardware, allowing Stoneless to run to maximum potential on any machine.

Well... That's the dream. In reality, neither are as universal as you would think. That's why I've implemented both. Also, they are not free from bugs - so Stoneless has to suffer from bugs that I have no power to prevent.

As for which one to choose... here's a quick comparison.

Direct3D	
Pros	Cons
Well supported on low end 3d accelerator cards	Suffers from instability because of incompatibility with the particular C++ compiler I use
Newer technology, and a little faster (or so we're led to believe)	
OpenGL	
Pros	Cons
Rocks on serious hardware	Struggles with larger maps
Stoneless' implementation is more stable	Stoneless' implementation uses less memory
	Lighting preview, head lamp don't work, though Quake lighting will (except for grayscale textures)

Hardware acceleration can dramatically speed rendering, so I recommend making use of it if your system supports one of these API's.

Both are functionally equivalent (except for D3D lighting preview) - other than that, neither has an advantage as far as implemented features go.

Changing between OpenGL and Direct3D

You can only have one 3D camera per map, and they are opened with Window/New D3D Camera and Window/New GL camera. D3D stands for Direct3D, and GL stands for OpenGL. To change API, close the current 3D camera and open a new one.

Keys

All the 3d camera keys can be set and changed in the options dialog (keys tab). See Options.

Looking around

Hold down the mlook key while you drag the left mouse button to look around in the 3D camera (kinda like mlook in Quake). You can move by holding down the right mouse button and dragging the mouse, by pressing the up and down keys, and by pressing the strafing keys.

Selection

You can select brushes and entities in the 3D camera in much the same way as in the 2D maps. Just click the brush you want to select, and hold **control** if you want to keep the previous selection as well.

There is a special selection feature for the 3D camera, though. Holding down both **control and shift** will ignore groupings - ie. you will select an individual brush, not the whole group. This is a very useful and powerful feature,

allowing you to edit, for instance, a single brush in a func_door group without ungrouping, editing, then regrouping and resetting the entity keys.

Render point entities

You can switch point entities on and off in the 3d view to expose brushes beneath them, or just to lessen the clutter. Go to View/Render point entities to turn them on and off.

Headlamp

Normally, Stoneless doesn't light the 3d map at all. Everything is show in full bright. But, to emphasise shapes, you can turn on a headlamp. This will slow down render slightly. Go to View/Headlamp. This doesn't work in OpenGL.

D3D Lighting Preview

Lighting preview will attempt to duplicate the effect of lighting in Quake with DirectX's lighting model. This doesn't work in OpenGL. It will slow down rendering significantly, but there is no prerendering necessary.

Quake Lighting

Quake lighting a more accurate method of lighting, see the appropriate section.

The 3D Modes

Stoneless supports quite a number of 3D modes. Please note, though, that not all modes may work if you are using 3D acceleration. For instance, Direct3D's wireframe mode is identical to solid mode on some S3 ViRGE based cards, but only if you have hardware 3D acceleration enabled.

Wireframe

The fastest mode, but often hard to make out what's going on. Allows you to see through brushes.

Solid

Each brushes is fully shaded with one random colour. Very fast.

Textured

If your computer can handle it, spend your time in this mode. Shows exactly how the level will look in Quake (without lighting) allowing you to carefully manipulate colour and shape.

1x1 MipMap

A very useful mode when textured is too slow. Like solid mode, except each brush is coloured with a hue based on the texture map. This colour is either the mean (average) colour on the map, or the mode (most used). You can set this in the options.

This mode works very well with the headlamp on. It's also a useful way to get an impression of tell how good your map looks - if it looks good in 1x1MipMap mode, it'll look great textured. If not, chances are it won't look so great textured (especially with Quake's textures).

Why do I call it 1x1MipMap mode? Well - if you ever went to the extreme and created MipMaps all the way down to a 1x1 sample, this would be what you would get.

Textured wireframe

Another alternative to textured mode. This is almost as fast as wireframe and colours in the frame in the colours of the texture. Allows you to see the overall colour transitions of the level.

Uncorrected Textured

This is the same as textured mode, except the textures are not corrected for perspective. A faster alternative, but the textures often jump around out of place.


Selection

Selection is the same as in the 2D map - click the brush or entity you want, and the editing tool will change as required. This is the most effective and powerful method of selection Stoneless offers.

Texture grabbing

Double left click a face to grab its texture. That is, the current texture will become the same as the texture on the face. Useful in a room full of similar textures.

Face edit mode

Select an applicable brush and click the  button or choose Modes/Face Edit to enter face editing mode. This allows you to edit the textures and alignment of individual faces. It only applies to the 3D Camera, you can still edit in the 2D face modes as always.

Notice how the entire map turns to a wireframe, except for the selected brushes. This allows you to see exactly where the brush is in relation to those around it, and can be useful even if you don't want to edit faces.

Click the face you want to edit, and the following dialog will appear:

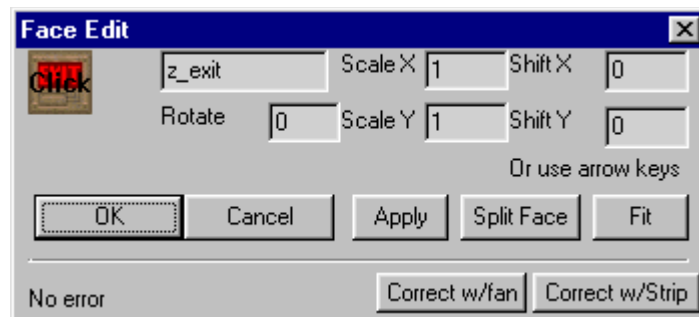


Diagram 11

Scale X and Y are the scale factors of the texture. Using this you can increase and decrease the size of the texture on the face, to create some interesting effects.

Shift X and Y are integral for creating good maps. They allow you to align the texture on the face, moving it up, down, left and right. Rotate does exactly that.

If you don't like moving textures using numbers - just use the arrow keys to move the texture about. The 3D preview will be updated instantly.

To change the texture, click the picture of the texture on the left. A menu will appear, showing the texture currently on the face, and the current texture. Choose the one most applicable.

To apply a certain texture to the face, first select it from the texture browser in the usual way. They press the texture, and it should appear in the drop down menu.

Note: you can select other brushes in the 2d map to edit their faces.

Split face

Split face is a powerful tool when used with touch-up mode. It will create a vertex in the very center of the face, which can then be altered in touch-up mode.

Fit

Fit will attempt to align the texture exactly in the face. This can be very useful for doors, etc, or for a short cut. No rotations are applied.

Errors

On the very bottom line, Stoneless will inform you of any errors in the face. Point off plane errors can be corrected be triangle fans or triangle strips - see the touch-up section for more information.

Quake Lighting

One of the beauties of Quake is it's lighting system. Make good use of it!

To help you with this, I've included a new lighting preview for version 1. This preview pre-renders lightmaps exactly as they will appear in Quake (including shadow casting), allowing you to see how your level will come out during the editing process, and before sending it to qbsp, light and Quake.

One of the advantages of Quake Lighting is all calculations are done at once, before you can see the effects, so the 3d camera will not take any performance hit if Quake lighting is on.

Also, you can limit the number brushes that do get lit, (see selections) to speed up the calculation of light maps.

The disadvantage of this is you have to wait for the lightmaps to be calculated.

When you select View/Quake Lighting, you will be presented with the following dialog:

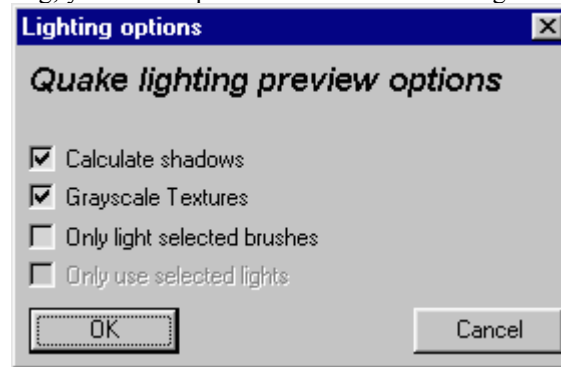


Diagram 12

Options

Calculate shadows

Keep this unchecked to dramatically speed up the calculation, and pretend light can pass through solid brushes. Checked, the result is light Quake.

Grayscale Textures

Grayscale textures won't be effected by the textures on the brushes - it shows you exactly how much light is reaching the brush, despite the brightness and colour of the texture beneath. This should only be used with Direct3D. It produces a wierd, multi-coloured effect with OpenGL.

Only light selected brushes

Check this box to light only the brushes that are selected.

Only use selected lights

If plausible, only light the map using the lights that are selected.

Special cases

Faces which do not get hit with any light (and will appear black in Quake) do not get lit at all. To lower the memory costs, faces which are too large will not be lit.

Results

Quake lighting in Stoneless

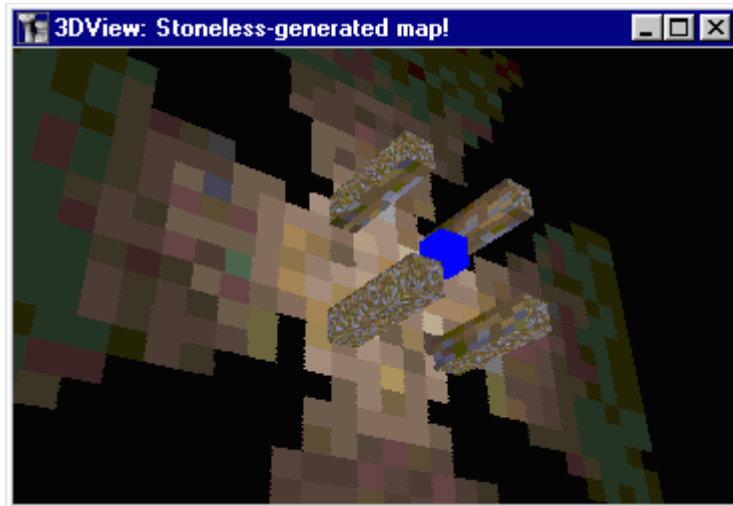


Diagram 13

The same in Quake



Diagram 14

Grayscale textures



Diagram 15

Options

The Options dialog allows you to tune Stoneless to your personal preference. The dialog is split into 5 tabs, Files, Misc, 3D Options, Keys and Entity Bindings.

There are many ways to increase your productivity by changing values in this dialog. I recommend becoming thoroughly versed in it's use.

Undo Page

Click the Undo page button to undo everything you've changed on the current page.

Files

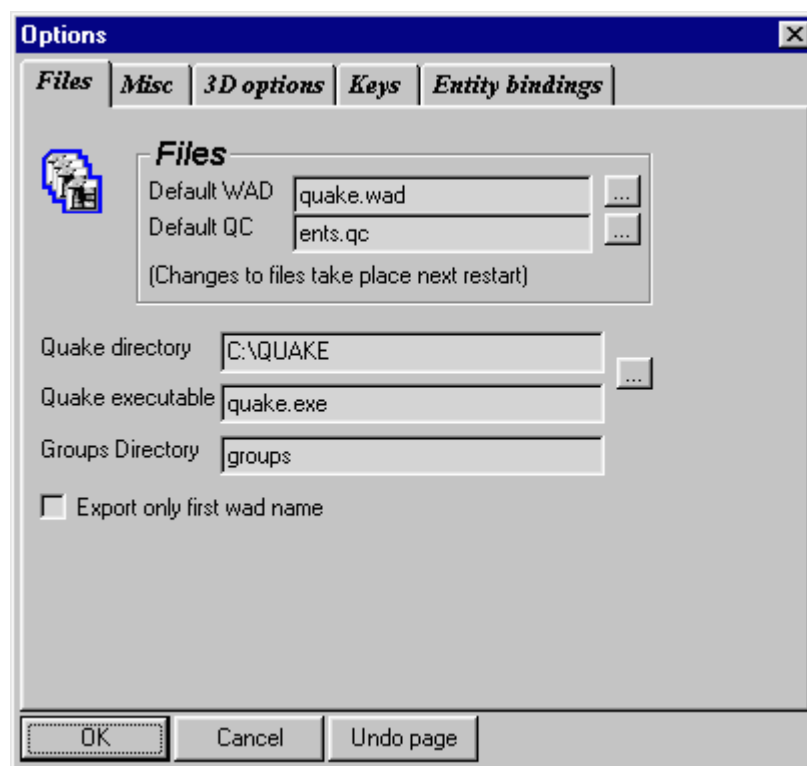




Diagram 16

Files

You can choose the default .qc and wadfile here. Click the  buttons to pick from a list. See the respective sections.

Quake directory

You should set this to the directory Quake is installed to. It is needed for compilation and testing. Click the  button to pick from a list. By setting the quake executable, you can preview maps using winquake, or glquake, etc.

Groups directory

The groups directory can be used to hold small, commonly used shapes for access with the Insert button on the button bar. By default, this is “groups.”

Export only first wad name

Export only first wad name should be checked if you’re using a qbsp that does not support multiple wads. The qbsp included with Stoneless supports multiple wads (so this should not be checked), but the standard qbsp does not.

Misc

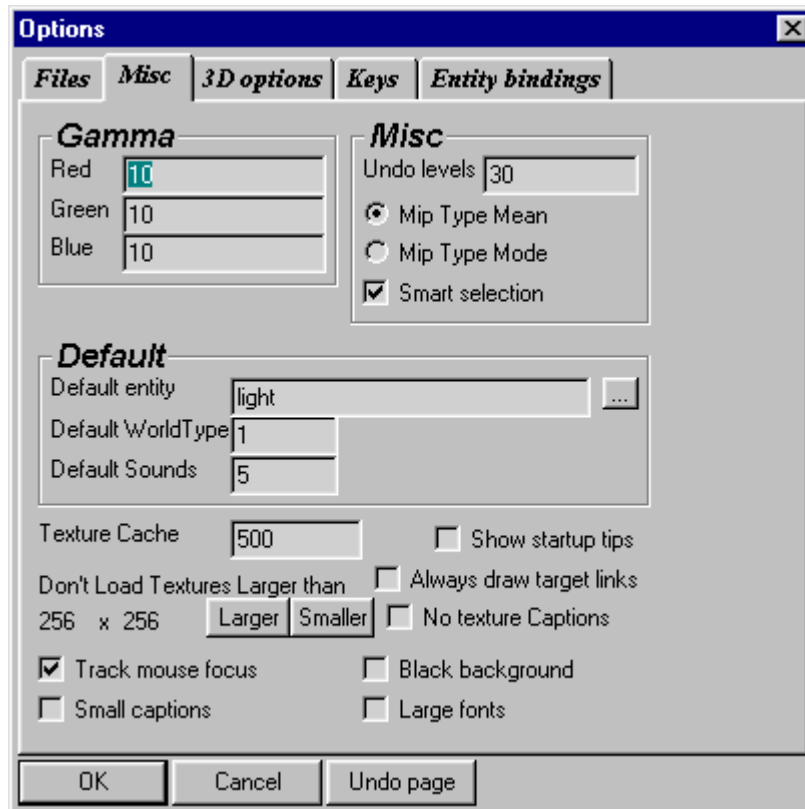


Diagram 17

Gamma

On some monitors, the texture browser and 3D camera may appear too dark. Make sure you can see all the textures well, and differentiated between them. The gamma scheme used actually pushes the middle range forward, to make it easy to tell textures apart. The higher the number, the brighter things appear. Anything below one makes textures darker. The settings above are for my dark Acer monitor, the default is all ones.

Undo levels

Set this to the amount of times you would like to undo. Adding levels takes up a little bit of memory. It shouldn't really make much of an effect until 100+, depending on how big the groups you edit are.

Mip type

The mip type decides how Stoneless choose the 1x1MipMap colour. Mean is the average, mode the most common colour. See 1x1MipMap in the 3dcamera section.

Smart Selection

If smart selection is checked, Stoneless will attempt to find the most applicable brush when selecting the 2d maps. You can turn it off, but I see no reason to.

Default Entity

This is the entity that is created when you press insert in entity mode. When you first run Stoneless, this will be "player_info_start", but you may like to change it to "light," or something similar.

Default worldtype

This is the default "worldtype" key in worldspawn. It is set automatically for every map so that in Quake, the keys will appear right. In default Quake, the settings are:

0 = medieval

1 = metal

2 = base

These settings may be different for other .qc files - see the worldspawn entry in your .qc file.

Default sounds

The sounds key in the worldspawn sets which CD track Quake will play for that level. If you don't set this key yourself, Stoneless will automatically set it to the default sounds value. There are 11 tracks on the CD that comes with Quake, so a number between 0 and 10 is probably most appropriate.

Texture Cache

Set this to limit the number of textures loaded into memory at any one time. The higher the number, the faster texture browsing will be, but Stoneless will use a lot of memory. Set this very low if you don't have much memory.

Note: the texture cache doesn't include the textures actually used in the map - that is, the all textures used plus this number will be stored in memory. Such is the price of performance.

To help you make your decision, the average texture size is about 90 by 90 pixels at one byte per pixel. So, on average, each texture takes 8100 bytes. Empty spots in the cache only take 4 bytes each. The defaults are:

1000 for 32+ megs of physical memory

500 for 20-32 megs

100 for 16-20

and 50 for anything less.

There's no pattern to those numbers - just my suggestions.

Always draw target links

Set this if you want Stoneless to draw connections between target and targetname pairs for all entities, not only those with the appropriate Stoneless flag.

Track mouse focus

Track mouse focus is veyr useful option which will dramatically cut down on the number of mouse clicks needed. The currently focused window will always be the one under the mouse cursor, so you can switch between, for example, the

XY and YZ views simply by moving the mouse. If this is not checked, you would have to click inside the window to shift the focus.

Black background

On some monitors, and especially at 1024*768 or greater resolutions, Stoneless' white background can be annoying. Check this to set it to black if it is more comforting to your eyes.

No texture captions

Check this to have a solid block of texture in texture browsers, without labels or gaps.

Small captions

Use this to save a couple of pixels of screen space.

Large fonts

If you can't read the small fonts, check this.

3D options

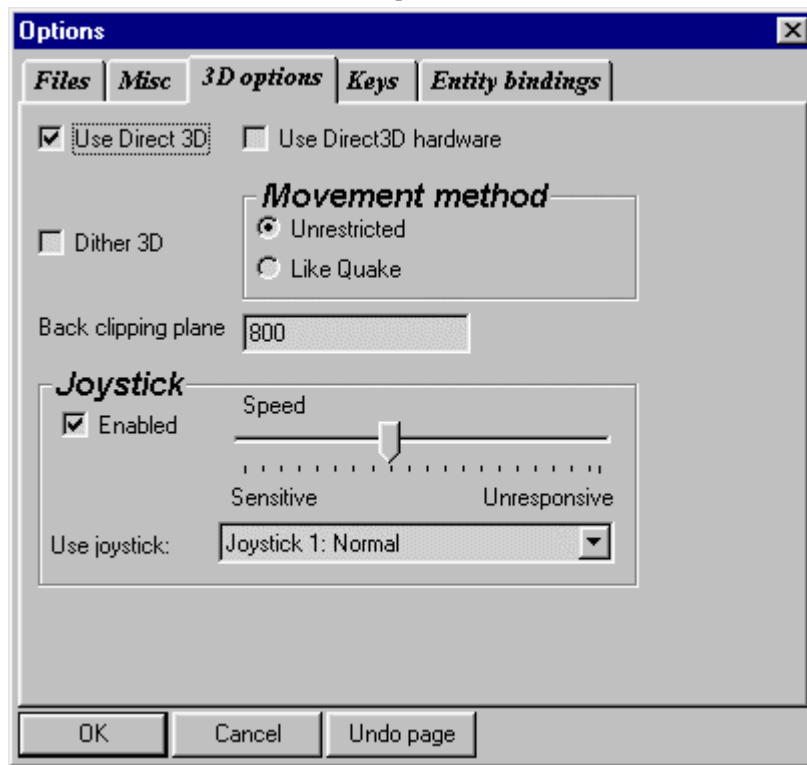


Diagram 18

Use Direct3D

If Direct3D is causing problems with your system, you can turn it off here. Or, you can attempt turning off hardware acceleration with the Use 3D hardware checkbox. This may solve the problem, and you can still use Direct3D.

Dither 3D

Check this for better colour approximation in 256 colour modes. It's slower, but things look better. For 16 and 24 bit colour depth modes, it should be off.

Back Clipping Plane

The back clipping plane is a very powerful feature which allows you to limit the distance at which polygons are rendered. That is, nothing further away from the viewpoint than this number will not be rendered. This can dramatically speed up rendering with no quality reduction, apart from not being able to see so far. The default is 5000, but to really take advantage set it to 500-800.

Setting the back clipping plane to a very small number is most useful when editing small rooms at the frontier of the level. Try spinning the camera around in the room, and you will notice it is much slower when you are looking back at the rest of the level. Put the back clipping plane down to 500 or even less, and it will be the same speed looking in any direction.

Joystick

You can enable joystick, or SpaceOrb support by checking the enabled checkbox. Joysticks won't work with the OpenGL-only version of Stoneless, and they do not effect the OpenGL camera. Move the speed dragbar until you've found a setting right for your joystick. You can select with joystick to use by pulling down the list. Using a joystick you can move the 3d camera (hold down button 1 to strafe) without having to focus on the 3d camera window.

Movement method

There are two methods for looking around in the 3d camera.

Unrestricted: the classical Stoneless method, allows you to pitch, roll and yaw infinitely

Quake: exactly like Quake's mlook, there is a specific up direction defined, and pitch is limited to a 180 degree span.

This works much better with Joysticks and SpaceOrbs.

Keys

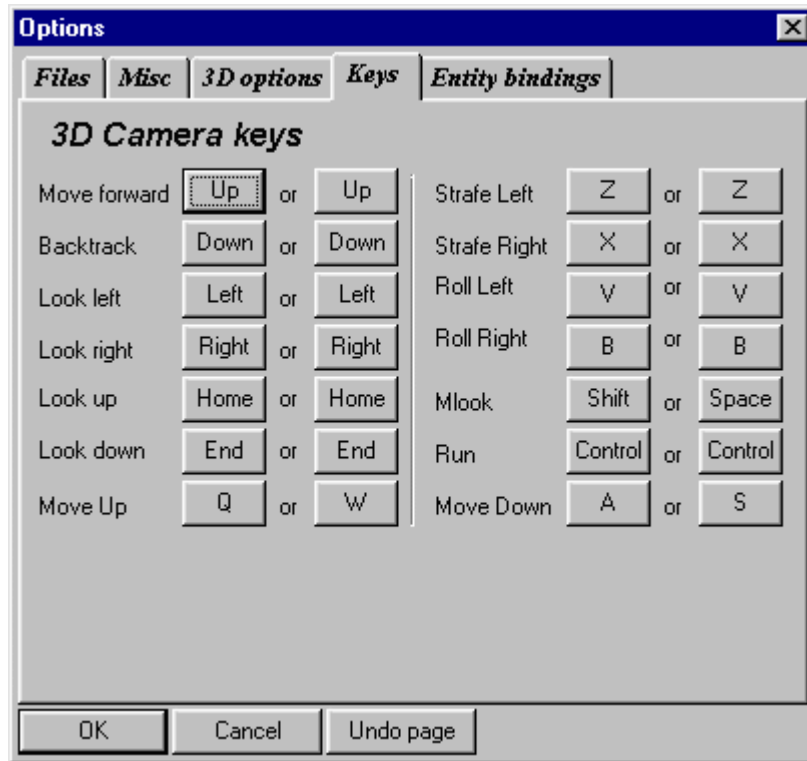


Diagram 19

Key arrangements are a very personal thing, so Stoneless allows you to setup movement in the 3d camera anyway you want. Just press the button corresponding to the key you want and press the new key when the dialog comes up. Note; you don't have to press any of the buttons on the dialog that will appear. Just press the key on your keyboard to use it.

Entity Bindings

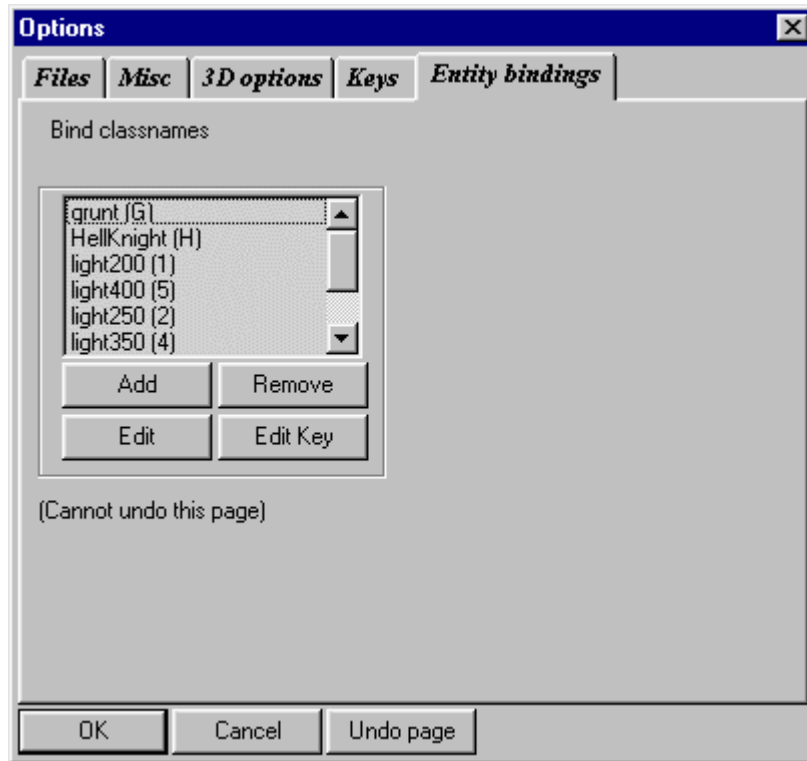


Diagram 20

Entities can be bound to keys to be inserted as simply and easily as the default entity. You can add entities to this list, give them any number of keyname/keyvalue pairs, and assign a key to them. While in entity selector mode, simply press the key to insert the bound entity.

The name that appears in this list is the entityname.

As can be seen in the picture, a useful application of this is to assign keys to several light entities with their brightness (light key) set between 200-400. This makes lighting a level in a interesting way a very quick process.

Add

Adds a new entity to the list

Remove

Removes the selected entity from the list

Edit

Open the properties dialog for the selected entity.

Edit Key

Assign a key to the selected entity. Simply click one of the buttons in the dialog that appears, or press the desired in on your keyboard.

Further Reading

I should retitile this section to further playing. Cause that's the best way to learn to edit. Free up 100 or so megs on your harddrive for .bsps, and go download the works of the best authors on the net.

Learn to appreciate the levels that come with Quake - very few freelance builders have bettered them yet, in my opinion, and even if hundreds of commercial add-on packs are released, I doubt many will come close. I hope they do, but judging by the quality of id's levels, the odds are stacked against them.

The QuakeLab (<http://206.12.10.240/stevefu/QuakeLab/>) is one of my favourite web-based editing resources. Plenty of downloads and hints - to get you off the ground and help you learn level design.

There's a nuts and bolts FAQ around the web somewhere - check out the Unofficial Quake Specs at

<http://www.gamers.org/dEngine/quake/spec/qspect-current.html>. Stoneless takes care of most of the stuff in those specs, but it can be useful to know it anyway.

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- gl. (or glitter)
- Matt Estela
- Caliban Tiresias Darklock
- Dennis Heij
- Jan Kwoka
- Ralph Geissler (Cybris)

Thanks - you've (hopefully) kept the bug count down. Sorry if there's anyone I've missed, 'cause I'm sure there's a few who have been lost in my email archives.

And, of course, the guys who work (or have worked) at id for... for.. For everything *sniff*.

Closing

Well, I haven't covered everything, but this file is getting mighty long, and is hogging a lot of disk space. I think most of the rest is pretty obvious - you shouldn't have much trouble coming to grips with it. I'm always an email away to answer questions, though.

This is the final version of Stoneless, at least, the last of this incarnation. So, I can now longer accept suggestions or bug reports, sorry. If something really big comes up, I'll quickly fix it, but officially Stoneless is closed.

Of course, I'm still here if anyone wants to ask a question about using Stoneless, Quake editing, DirectX, or programming in general. Drop me an email, and I'll try to help you out.

Good luck editing,

David Jewsbury (Gooz)
jewsbury@netspace.net.au

And, as George Costanza said, "**Nothing** is better than architect!!"

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