

Micky C's guide to fast mapping: All the time-saving shortcuts in one place for beginners!

Preface: If you've ever made a few maps in build, you'd know that if you build something slowly, it starts to take its toll on your motivation. You'd also remember that when you first started out, it took you ages to make that one bland, small, yet horribly oversized map with texturing issues a-plenty, only to see the pro's pumping out high quality work within a month. If you're fed up with doing the same task over and over, wishing that you could do it all in one go, there's a good chance you can! And this guide is for you.

Note: I'm assuming you're already proficient with the basics of map making, such as terminology and basic controls. The best way to learn how to map is with the ~~mapping bible~~ informational suite found at <http://infosuite.duke4.net/>. Another good place to go is the eduke wiki page on map editing: http://wiki.eduke32.com/wiki/Level_editing and the reference pages linked to at the top. Do read through all the keyboard commands, even if you're not going to learn them all, because you might discover something you'll find very useful, and in fact a lot of this guide is just explaining some of those obscure functions listed. Also check out my [guide to making good maps](#). If you're going to do something, do it right!

There are several areas focused on in this guide: Copying & Pasting, Speed texturing, Geometry Editing, and Shading/pals. If you think it's not worth the time reading through this guide, then think of the hours it'll save you in mapping. There are some things in here which won't necessarily improve the speed of your mapping, but are still very important to know about, so you should at least read everything once, even if you don't understand it.

There might well be concepts that you're already aware of, but there's a good chance if you're starting out, that there's a lot of stuff here you're not aware of. If you've read a description and still aren't sure how something works, the best way to figure it out is to try it in mapster and observe.

Don't forget, *[F1]* toggles help, *[F6]* toggles sector effector help, and *[F7]* toggles sector tag help, so you don't need to remember them off by heart.

Section 1: Copy and Paste

A good way to quickly make a highly detailed map, is to spend a lot of time making a small, highly detailed segment, then copying it a few times (not too much though, you still want variety). Bulk sector editing, also discussed, is the ultimate time saver and can be applied in unison with many different functions in this guide.

Advanced Highlighting (this is important for bulk sector editing):

If you're going to C&P, you first need to highlight the object you're going to copy.

To highlight a sector, traditionally you'll hold down *[RIGHT ALT]*, then draw a box around the sectors, but it's handy to know that you can highlight a second, third, and multiple sectors by holding down *[']* as you drag the selection box over them. This way you can highlight sectors in different parts of the map. Likewise, use the *[;]* key to deselect sectors. A small plus or minus will appear next to the cursor depending on which button you're holding.

You can select individual sectors with the mouse by moving the cursor inside the sector you want, holding *[RIGHT ALT]*, and holding *[RIGHT CTRL]* as you release *[RIGHT ALT]*. The sector is now highlighted. This method of selection also works with *[']* and *[;]* to select/deselect additional sectors by mouse. Simply hold *[RIGHT ALT]* and the appropriate button depending on what you want to do, then hold *[RIGHT CTRL]* while releasing the other buttons. This becomes very quick and easy to do after doing it a few times.

You can also change the pals of the surfaces of highlighted sectors by going into 3D mode and pressing *[']* and *[P]*, it will prompt you to change the pals of the ceilings, floors, walls and sprites separately.

Likewise, if you're going to highlight sprites or verticies, you'd hold down *[RIGHT SHIFT]* and draw a box. However if you want to select a single loop of walls to move, place the cursor next to one of the walls of the loop so that it's flashing, then press *[ALT]* with *[RIGHT SHIFT]*.

Pasting sectors and sprites:

While you've got sectors highlighted, press *[INSERT]* to 'stamp' a copy. You can now place this new sector in void space and hit *[RIGHT ALT]* again to deselect it. For example, paste two segments next to each other to make a hallway. If you want to double the length of the hallway, don't select one segment and paste it twice-select two segments and paste it once! The same for multiple segments.

It's the same for pasting into player space, except that the engine will ask you if you want to create an inner loop. In order to paste, you do, so press *[y]* (for yes) to paste. You also can't paste segments next to each other (as in overlapping outer walls).

And of course nothing's stopping you from making a nice complicated sprite structure, then selecting all the sprites with *[RIGHT SHIFT]* and pressing *[INSERT]* a few times to paste it around.

Bulk sector editing:

If you have a group of sectors highlighted with *[RIGHT ALT]*, and you go into 3D mode, you can shade every surface and sprite within the highlighted sectors at the same time by the same amount, by adjusting the shade of any individual surface in the sectors. Neat! If you select all the sectors of a room except the light fitting textures and darken it, you'll instantly have a shaded room with bright lights for nice contrast.

By the same principle, if sectors are highlighted, you can adjust the heights of all the sectors' floors by adjusting the height of a single highlighted floor, and likewise for ceilings. Sprites won't be moved in this fashion, however, you can highlight the sprites themselves in 2D with *[RIGHT SHIFT]* in order to move them all up or down.

Experiment and see what other changes you can make in bulk (e.g *[']* + *[P]* to change pals.)

Section 2, Speed Texturing:

When I first started mapping, one of the biggest if not the biggest time waster for me was choosing textures, and if you're the same, then this section can really help you both in speed-choosing and speed-applying.

Texture selection screen options:

Ever wanted to only look at the set of enemies, or doors, without having to scroll through the thousands of textures? It's easy! When in the texture selection screen, press *[t]*, which will bring up a menu of sets of textures you can use.

Searching for named files:

There's actually a name search option in mapster. For example, if you want to look for a fire sprite, press *[s]*, type 'fire', and hit *[ENTER]*. It will take you to a sprite that has 'fire' in its name. It might not be the sprite you want, but don't worry. Press *[s]* again, followed by *[ENTER]* ('fire' will still be in the search box), and it will take you to the next sprite that has 'fire' in its name, and so on. Note only some sprites have names, so don't rely on this feature all the time.

Texturing rooms with the push of a button:

Rather than pressing *[ENTER]* on every single wall of your room (or column in the middle of a room), which can take a while, there's a feature that pastes a texture to all the walls in a loop! Just copy the texture you want with *[TAB]*, then hold *[RIGHT CTRL]* with *[ENTER]*. Bam! There's a few hours of noob mapping saved right there!

Auto-aligning walls:

If you're going around pasting textures on walls everywhere, chances are they're not going to match up

vertically or horizontally, so instead of individually shifting each one with *[RIGHT SHIFT]* and the keypad keys, there is a feature to align them all for you. Just point at the texture, then press *[RIGHT CTRL]* and *[.]*, and all the textures to the right of the loop will now be vertically aligned. You can also make all of them horizontally aligned by pressing *[RIGHT CTRL]*, *[RIGHT SHIFT]* and *[.]*. If you only want to align the texture immediately to the right, not all of them, leave out the *[RIGHT CTRL]*. Only textures of the same tile will be aligned, the cycle is broken when the next wall has a different texture.

Replace all tiles of x with tiles of y.

If you have a texture pasted all over the ceiling, but you want to replace that texture with another specific texture. Copy the new texture onto the clipboard, point the cursor at the ceiling, and press *[ALT]* and *[C]*. If that texture is also used as a wall, floor or sprite, they will not be affected, as it only replaces the specific type that you're pointing at. You can also use it for walls, floors and sprites, not just ceilings.

Pasting specific properties of textures/sprites

I won't go into much detail here, but it's possible to only paste certain properties such as only shade and pal (*[RIGHT SHIFT]* + *[LEFT ENTER]*), rather than pasting everything from the clipboard. There are a few of them and are modifiers of *[LEFT ENTER]*. I don't use them a great deal myself but you might. Look here for more info: http://wiki.eduke32.com/wiki/Build/Mapster32_Keyboard_Commands#3D_Mode:_Keys

Section 3. Geometry editing:

This section is rather short and mostly focuses on dealing with slopes and things you can do with them.

Speed sloping:

When you want to raise the slope of a floor to the height of the next sector, you can do it automatically using *[/]* + *[ALT]*, and the same goes for ceilings with *[/]* + *[ALT]*. No more needing to raise slopes one increment at a time.

Speed hilling/valleying:

This is a method I discovered which allows you to create realistic looking hills and valleys. It's fairly fast, doesn't use triangles, and can be done in several iterations to have slopes ease off gradually.

It looks like a lots of steps but it really isn't, I just stated all the obvious steps for clarity. The catch, if you can call it a catch, is that each set of isolines is the same shape as the outline of the original sector, so if you want to have more varying isolines then by all means stick with triangles, but this technique should suit most valleys, dips and hills people are trying to make.

1. Make the outline of the valley/hill.
2. Highlight the sector with right-alt.
3. Make a copy with the insert button, keep the copy highlighted.
3. Bring up the special functions menu with ' and F (this menu is discussed more later on).
4. Select the option "resize selection", give the value of the percentage you wish to change the size of the sector (e.g 50 for half the size, 200 for twice the size).
5. Drag the smaller copy into roughly the middle of the big sector (although it doesn't really matter where, as long as it's within the big one). And paste it.
6. Connect the corresponding vertices (I hope people know what I mean by that. Two sides of each sector should be parallel, the walls of the bigger and smaller sector.)
7. Make the inside of what was originally the big sector the first walls for all the sectors.
8. Adjust the height of the smaller sector to the bottom of the valley/top of the hill.
9. Auto-adjust the slopes one by one to match the height of the smaller sector.

A small warning though: When you resize the sector, it's going to change it's position on the grid. If you make it smaller, it moves towards the centre, and if you make it bigger, it moves away from the centre, possibly even outside the grid, so be careful. This effect can be minimised by positioning the sector in the middle of the grid before resizing. It also adjusts the height of the floor and ceiling in a similar manner, but both of these should only take a second to fix.

Section 4: shades and pals

Visibility and fog pals:

Visibility is an underrated feature of maps. It's another way of controlling the brightness of a sector, which basically determines how quickly it will get dark as you move away from it. Using this, you can make a sector(s) initially very dark, but not make it get much darker (as opposed to how dark sectors normally turn pitch black very quickly when you move away from them).

Coloured fog means that instead of distant sectors turning black, they can become other colours as well, as determined by special pals called fog pals. Hardcoded fogpals are pals 26-29 and are white, red, green and blue. You can also make your own fogpals with DEFs:

http://wiki.eduke32.com/wiki/DEF_Language#fogpal. Fog pals are absolutely fantastic for atmosphere and IMO let you get away to some extent with poorly shaded areas.

Visibility comes in very useful with fogpals if you want to make a sector dark while keeping the fog back. (Usually shade determines the thickness of fog). So experiment to get best results. To change visibility, use ['] + [V] while in 3D mode. Or to change the visibility of only the highlighted sectors, use [.] + [V].

New sprite shade and invisibility options

A more recent (as of 2011) feature added to the engine is the ability to make sprites ignore the shade of the sector they're in, which used to be a huge pain sometimes, and another option to make sprites and models completely invisible.

You can make sprites invisible by going into 3D mode, and pressing ['] and [i] on them. i for invisible. You can toggle between whether you want these objects to show up in 3D mode or not by pressing [i].

A huge benefit of this option is that sprites which are hardcoded to emit lights in polymer, such as switches, no longer emit lights. This means that if you want a switch to be hidden, with not even a light showing, you're now able to do so.

Similarly, pressing [n] for no shade, on a sprite in 3D mode will allow the sprite to keep its own shade regardless of the shade of the containing sector. However there may be some issues with sectors with changing shades such as cyclers or switches (I'm not sure though).

Auto Shading walls:

Apparently you can autoshade walls, which I imagine takes out the chore of individually shading walls in order to achieve a gradual fade effect. However as I've never had much success with this feature, I won't go into detail, merely point you back to the key combinations page and wish you luck:

http://wiki.eduke32.com/wiki/Build/Mapster32_Keyboard_Commands#3D_Mode:_Keys

Section 5: New or obscure features

This section deals with completely new features that have been added to mapster32 fairly recently (as of 2011) or are in general not widely known about.

Special Functions menu

A neat little menu with a few useful functions can be accessed in 2D mode by pressing ['] and [F]. Some of the features include resizing sectors, setting the parallaxed ceiling (sky) height, and vertically shifting your level up or down to name a few. Definitely worth having a look at.

The tagging nightmare made easy:

Tags are an issue. Not only do you have to remember which tag does what, but you also have to keep track of which tag you've used... no more!

The guides you should have read by now would have told you you need to tag with numbers, however, eduke32 now has a feature, where you can tag switches, sector effectors and so on with words! This makes them much easier to remember. (If you really want to know, it works by matching words with numbers, but basically you can forget the numbers now.) So if you make a tag say “door1” and it gives it a tag say 7, then you type “door1” for another tag, the engine will automatically give it the number 7.

But it gets better. Instead of thinking up an unused tag every time you make an effect, if you type in a new word for a tag, the engine will automatically assign it an unused number!

And it gets even better: You now don’t need to know whether an effect uses the hitag or lotag for its channel. All you have to do is try typing a word, if the word appears, then that’s the tag it uses, if the letters don’t appear, you know to use the other tag. The word tagging system is smart because it knows which tags work with what, and it’s as easy as typing a word where you’d normally type a number.

Polymer Lighting:

When using the polymer renderer, you can have dynamic coloured, shadow-casting lights that can make a map look more modern, especially when using the HRP which has textures designed to take advantage of these lights. However at the time of this writing, the lights are very resource intensive and will slow your computer down to a crawl if used extensively. Note: Do not rely on these lights to make your level look good, good looking lights are not a substitute for detail.

There are two types of dynamic lights, both of which are made using sector effectors.

The SE 49 (point light) casts light in all directions, and does not cast shadows.

The SE 50 (spot light) casts light in one direction. It does cast shadows, and is a lot more resource intensive than the point light.

These tags apply to both SEs:

- Hitag: the range of the light (higher number = more distance light covers). Range: 0-65535
- xvel/yvel/zvel properties (accessed via F8 menu when cursor is on a sprite in 2D mode) =RGB values (colours), each can range from 0-255. Experiment with combinations for different colours.
- Transparency= priority, the more transparent the SE is, the lower priority its light is. This isn’t all that important unless you’ve got lots of lights on screen.

These are additional features specifically for spotlights:

- Angle of SE determines the direction the light will face (duh).
- Extra (via F8) determines up/down angle. Defaulting down about 45 degrees, an extra of 100 faces straight ahead.
- Shade determines the width of the light, range: -127 to 127
- Owner = picnum of texture to project. Works best with bright textures, choose animated sprites to have an animated projection, which is pretty cool.
- Make the SE 1-sided to remove the shadow, which can be useful in some circumstances, such as when projecting animated textures and the shadow isn’t important. Helps with framerate.

To view these lights in mapster, you can change into the polymer renderer by opening up the console with the tilde key [`] or [~] and type *setrendermode 4* then press [`] + [X] to enable shade preview mode. *setrendermode 3* reverts it back to polymost. Make sure you’re already in an OpenGL renderer when changing renderers.

Fixing map corruptions

If your map suddenly gets corrupted and you have no idea what’s going on. Open up the console and type *corruptcheck tryfix* which should fix your problem 90% of the time (make a separate copy of your map before you try this though).

However it is advised that you toggle through all the individual corruption and fix them manually; they’re usually simple things such as a sprite in invalid player space (delete it or move it into a sector), or a sector with only 2 walls (add a vertex, drag it out and either join or delete the sector.)

Note that if they’re level 1 corruptions and you don’t know what’s wrong, chances are it’s a harmless slope thing which is hardly a corruption, but is worth fixing anyway, so do the console step mentioned above for this.