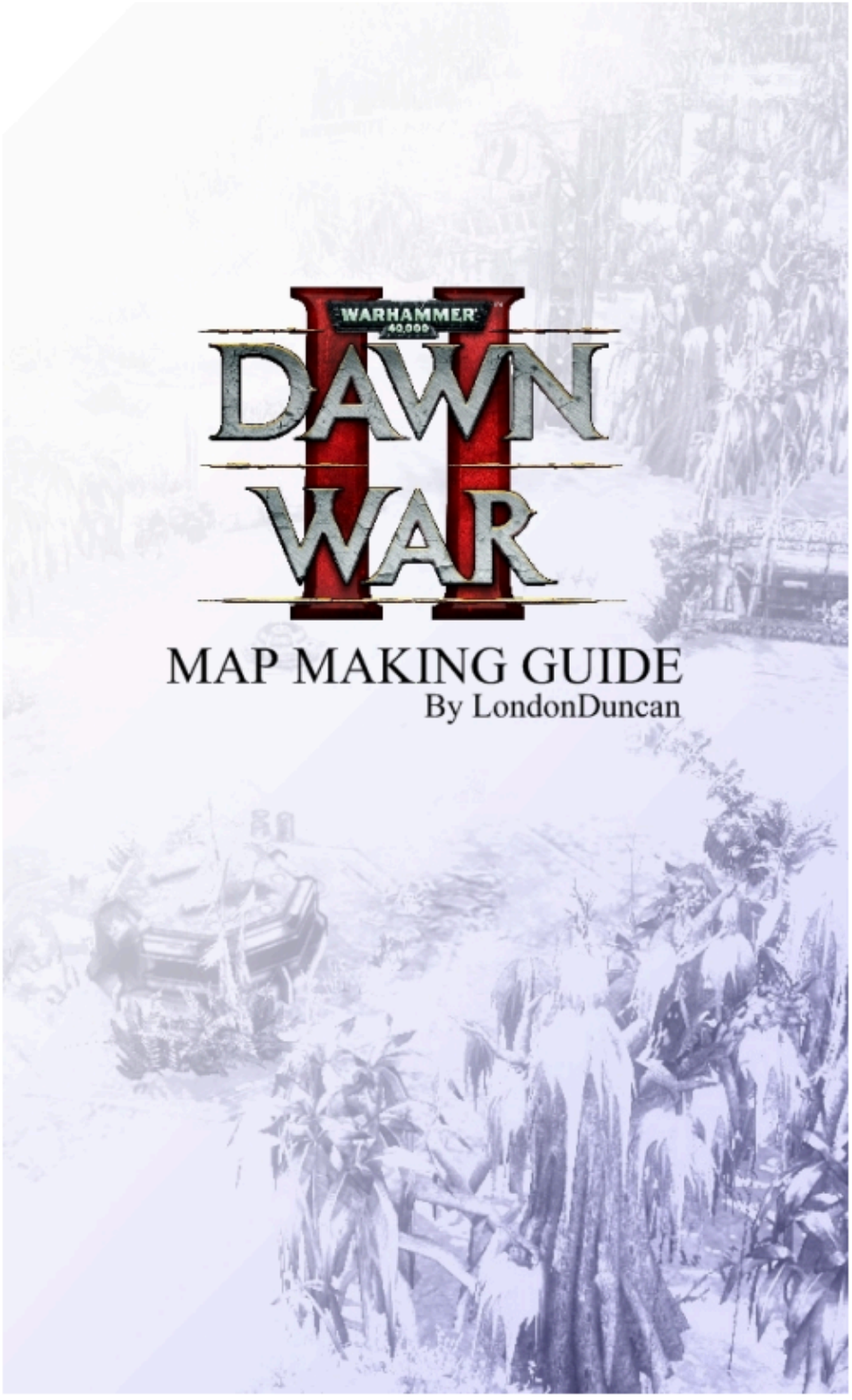

MAP MAKING GUIDE

By LondonDuncan

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1 INTRODUCTION

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Duncan

If this is your first experience with mapping I would recommend reading through this guide chapter by chapter whilst practising with the world builder. Allow yourself this time to get used to the world builder, seeing how different tools work, what objects are available and what limitations there are etc. Mapping is a fairly simple process but I cannot iterate enough how much practice will improve your mapping.

After this take a more detailed look at relics map (just observe 2 computers) have a look at how all the components combine together to make a finished product. Having spent some time previously with the world builder will greatly help you to understand how these maps were made. Maybe even take a screen shot and try a rough copy a small part of their map. Making a detailed, balanced and enjoyable map takes time, don't rush and enjoy the ride!

I would recommend sketching out ideas for your map using pencil and paper. Decide what kind of map you are trying to make. These can range from tight urban environments to a large expanse of desert. You can also sketch in the world builder – spend 10 minuets making a very rough map. Just use the height map and the objects for home base, requisition, power and victory points. I have found both methods to be useful to get a basic idea of balance and pathing. Whilst sketching is great for initial concepts, the world builder is useful for tweaking before you start finalising your map. If in doubt, ask the community for advice on your map balance.

I would also recommend watching the videos created by Grizzzzzzzzzzzzzz
They are also a very useful guide.
http://www.gamereplays.org/community/index.php?showtopic=510554

Starting Your First Map

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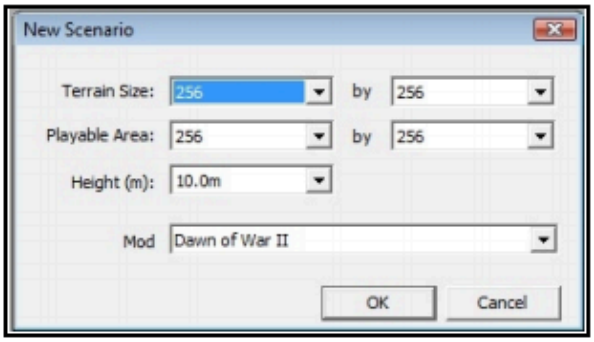
Open a new file (Ctrl + n)

Choose an appropriate size for the map (as discussed below) Height is not as important at this time, but 50m is a good place to start.



To Save the Map (File, Save As): Save to <root>/Assets/Maps/PvP/

Make sure it is saving to the <root>/Assets/Maps/**PvP** folder otherwise they will not be baked to the correct location to test the map.

Save progress often. The editor can crash without warning. (don't turn off the auto reminder!)

At the time of this guides release the editor doesn't work, however Copernicus has created a fix : http://community.dawnofwar2.com/forums/topic/34627
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2 FUNDAMENTALS

2.1 Map Size

Map size is a very important factor to consider when making a map. Decide at the start how big you want your map, its not simple to change it half way thought mapping. The map size will directly effect the balance and pace of the game. Too large and the game will seem like a trek between points with the slower races being at a disadvantage and transports becoming a requirement. Too small and there could be no room to flank without being seen and can create some pathing issues. Think about what type of map you would like and use that as a starting point to select your map.

- You can always make your map larger then you think you will need, and reduce to the size you want using impasse tool (chapter 6.1). This will effect the camera and the fps of your map. However if used correctly can created interesting shaped maps, for example, Calderis Refinery. Just have objects or height changes to show to the player where is inaccessible.

- There should always be a non playable area around the map, this is to hide the map "drop off" and allow you to make a more realistic environment. This should generally be at least 150%- 175% size of the playable area in 1v1, but this percentage decreases as the map gets larger. You do not need a huge non playable area, either enough to get to the maximum fog distance (chapter 15.1) or to allow a realistic height change to hide the drop off. Again make sure it is clear where this non playable area starts by either using objects of having height changes.

The recommend "starting" size for maps is below.

Players	Playable Area	Non Playable Area
2	256 x 256	448 x 448
4	352 x 352	544 x 544
6	448 x 448	608x608

Below is also a list of a couple of official maps along with their sizes. The "M² playable" area is a rough approximation taking into account large area of the edges which have been made inaccessible

Map	Playable (HeighxWidth)	Terrain Size (HeighxWidth)	M² Playable (aprrox)	Req points	Power Nodes
(2p) Siwal Frontier	256x256	384x384	65000	5	4
(2p) Green Tooth Jungle	352x320	512x512	85000	5	4
(2p) High Legis Stratum	320x384	672x768	90000	4	4
(2p) Leviathan Hive	448x256	832x448	85000	4	5
(2p) Green Tooth Gorge	256x288	512x544	70000	6	4
(2p) Outer Reaches	256x256	384x384	65000	5	4
(4p) Golgotha Depths	320x320	576x576	100000	5	5
(4p) Medean Cliff Mines	384x384	512x512	135000	5	5
(4p) Calderis Refinery	448x448	800x800	110000	6	6
(6p) Tiber Outpost	512x512	640x640	200000	6	6
(6p) Argus Desert Gate	320x480	640x800	130000	7	6
(6p) Angel Gate	416x416	544x544	130000	7	6
(6p) Typhon Arena	384x384	544x544	145000	5	5

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2.2 Layout

Layout and is one of the most important factors when creating a map. You map can be open spaces, narrow corridors, creating flanking heaven or flanking hell . Get it wrong and a stunning looking map can become unplayable. When creating the layout try and think if there is an unfair advantage to any race or unit. For example:
A narrow map with a low or no flanking possibilities favours a platform build, where as a map with lots of narrow routes and shot blocking will favour melee units.

Also try and have at least one large open space where the armies can clash late game. A basic rule of thumb is that there should always be three routes to any point on the map or two wide routes.

Height changes can help with the look of the map and create some natural shot blocking, but the extra time going up a ramp or stairs is not a major factor (unless you are using narrow stairs and then you need to consider vehicle pathing). It is the different routes a player can take, where he can fire and how fast he can flank that will effect the gameplay.

2.3 Requisition/Power/Vps

Getting the number of requisition points correct is important, it will effect the pace of the game and how quickly a player can upgrade his base. Don't supply the players with too many or too few points, both will cause issues.

- **3** VP's are a must on all sizes. The game is built around this concept and any deviation can create stalemates or extend out games to boredom levels.

- Power nodes are less restrictive, however due to the nature of teching and the importance of power harassing there are still some restrictions to balanced play. For example: a large number of power points allow multiple variations on where you can place your power, subsequently making your enemy scout for it. Conversely a low number can makes power harassing easier, as if you get pushed off the map the enemy can make a bee-line straight to the power node confident that the power nodes will be there.

  Below is how many power nodes I would build to create a balanced map
  1v1 : 4 - 5
  2v2 : 5 - 6
  3v3 : 5 - 6

- The number of requisition points can vary the greatest. Whilst still important it will not effect play as much as Victory or power. Again too few and there will be nothing extra to fight over too many and half the game will be spent capping. They are useful for increasing "zone value" as described in the next chapter.

  Again I would recommend.
  1v1: 4-6
  2v2: 5-6
  3v3: 5-7

Please refer to the previous chart on page 4 to see the number of points on official maps.

The objects for the above three can be found in the object list

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Tip: Zone value*: Each victory point, power node or requisition point increases the "value" of an area on the map. The higher this value the more important is it to fight over. Try and spread this value as evenly as you can across the map, this will greatly increase the re playability of a map as you will not be required to fight over the same area over and over.*

When placing the points, consider how this effects the zone value. Think of how you would play the map, where would you go first, would you always go that route, and does the layout allow for multiple capping orders.

2.4 Balance

One player or team should not have an unfair advantage over the other,additionally nor should any race. The layout doesn't have to be symmetrical but each player should have a equal distance to available requisition, power and vp's. A useful tool for this is the Ruler Mode tool (please see 2.6) where you can compare pathing distance between two points.

Cover should be evenly available to both sides. When coming up to a node, both sides should have equal green/yellow cover available or the imbalance offset in a different part of the map.

Garrisonable buildings are also important to consider. They cannot have a "commanding view" of a large portion of the map. Make it possible to flank the building, get close with green cover or bypass it completely (*Buildings are considered yellow cover, so any green cover available around will negate the bonus*). Too many buildings favours ranged races/builds where none make it easier for melee to push off ranged from the map as they have no where else to retreat too.

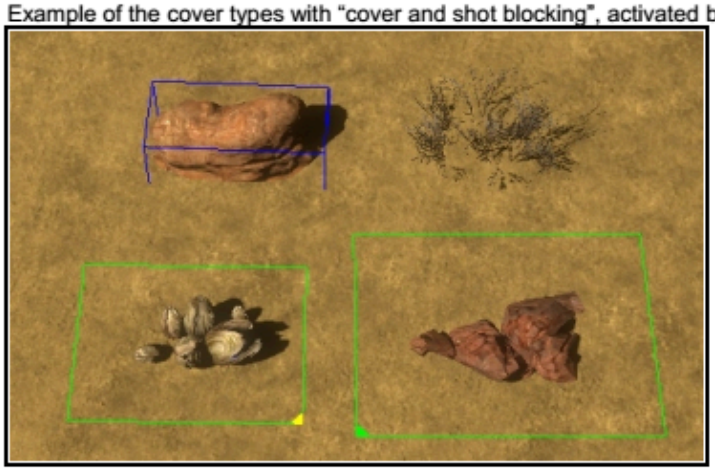
2.5 Cover

There are four types base properties for objects which effect cover.

- No cover : which provide no bonus and are purely decorative. (no box)
- Yellow : which gives moderate defence against ranged fire (green box with a yellow triangle in corner)
- Green : which gives good defence against ranged fire (green box with a green triangle in corner)
- Blue : which blocks line of sight. (blue box around object)

Some objects have a combination of the above.

Example of the cover types with "cover and shot blocking", activated by the icon



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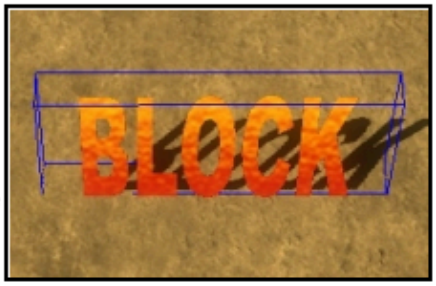
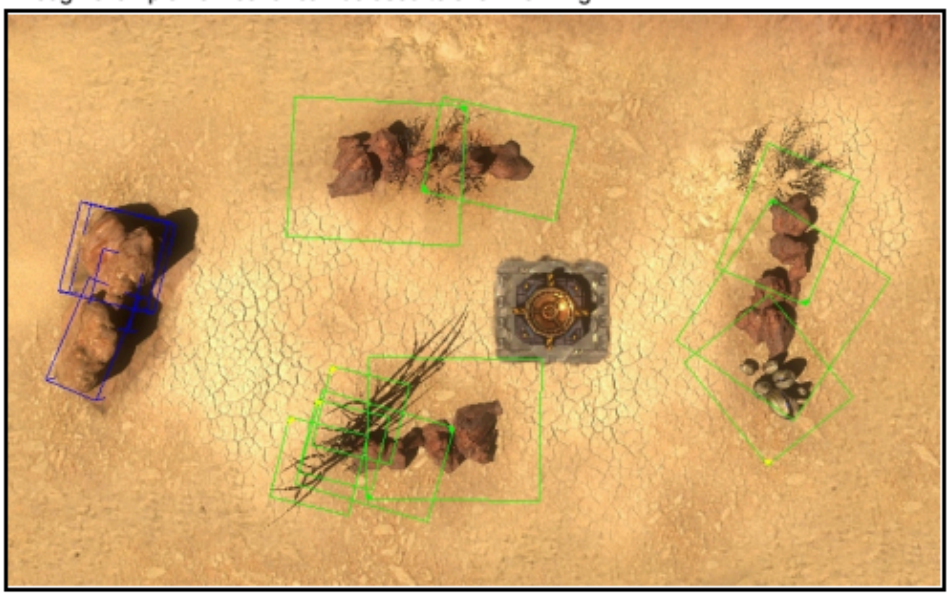
ebps > world objects > gameplay> move_shot_blockers.

This will not show on the map but will block all ranged. It is important to use these when there is a significant change in height as this is not automatically created. Note : it also acts as a move blocker for all units.



Yellow cover is a bit more forgiving for where it can be placed , it is the green cover which give the highest bonus and has to be placed more carefully. Along with balance, think about if there is opportunity to flank the cover, and how the cover can make more interesting skirmishes. objects which are shot blockers allow complete protection from ranged fire, and are useful in giving melee more opportunity to flank.
A rough example how cover can be used to allow flanking.



Note: Some splats will also give cover, mostly the ones from the crater section

2.6 Pathfinding

Objects also have the five different crusher properties which determine their effect on unit pathing. Each unit in the game has a different crusher type. If the unit reaches or surpasses the objects required crusher value, it will not take it into account with its pathing and just drive/run through it.

Land Only – Most infantry.
Light Crusher - Hive tyrant.
Jumper – Jump troops when landing.
Medium Crusher – Light vehicles (ie wartrucks, falcon, razor back)
Heavy Crusher – Walkers, terminators, heavy tanks (looted, predator)

To show these values. Select the ruler tool from the task bar denoted by the icon 

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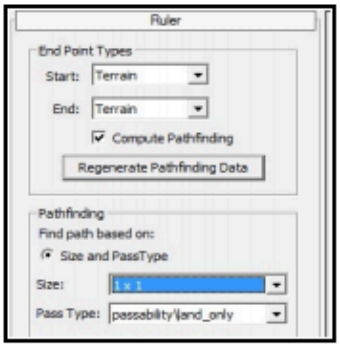


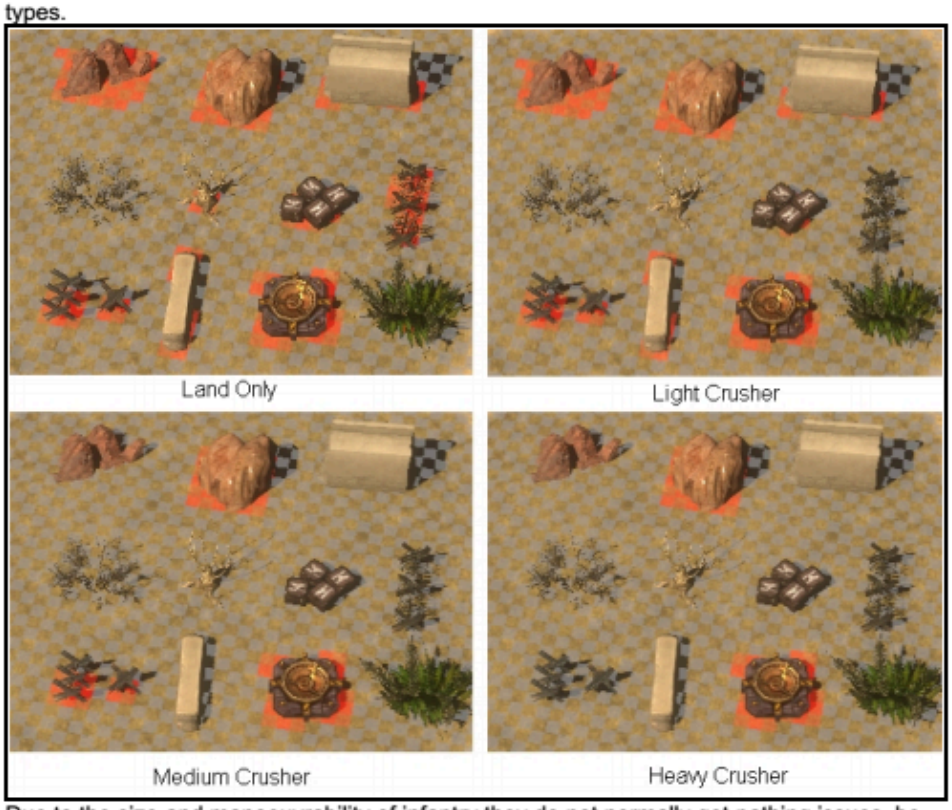
Selected the type of crusher required.

Click **Regenerate Pathfinding Data**

This is also helpful when measuring the distance between two points to help with map balance. Use **Object** for both the **Start** and **End**, click on the two points you are interested in. (ie Home Base and Point Node)

The straight line and pathfinding distance (determined by crusher type selected) will now be shown at the bottom of the side bar

A selection of objects showing their effect on pathing when subjected to different crusher types.



Due to the size and manoeuvrability of infantry they do not normally get pathing issues, be more concerned with vehicles and how there pathing will be effected by your layout and objects. Since the recent patch vehicle pathing is now a lot better, but make sure vehicles have a "relative" easy time getting around the map. Conversely if you want to block an area off from vehicles or leave some routes infantry only, this is a useful tool to make sure that it works.

A map can also take into account walls that can be crushed as a later date to create new routes around the map (see Argus Desert Gate or Quest's Hersey) which can completed change of the map for late game. I wouldn't recommend blocking off VP's completed, as this "drags" out the game and creates too much of an advantage for teleporting or burrowing commanders, who can cap with immunity until later in the game.

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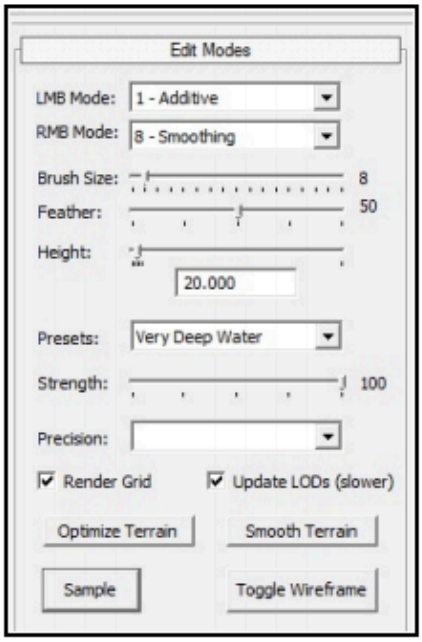
3 WORLDBUILDER TOOLS

3.1 Heightmap Editor

The height map editor is generally the first tool you should use when starting to create your map. It creates the "foundation" of the layout and can help the map look more authentic, especially in the case of city based maps.

To start click on the Heightmap icon on the toolar (or press F5)



LMB/ RMB Mode: The action of left or right mouse buttons respectively.

Additive : Increases the heigh of the selected areas
Subtractive: Decrease the height.
Set Value: Change the height of the selected area to a set value as determined by Height
Smoothing: Smooths all the height values in the selected area together.

Brush size – Diameter of brush in meters.

Feather:

- 0 all area selected will be immediately effected 100%
- 100% only centre point is 100% effected, whist the effect is gradually decreased to the edge of the brush

Height: Used to set the value for Set Value Height
Strength – The speed at which heights are changed (no effect to set value)

Smooth Terrain – will smooth the whole of the map (not recommended)

Sample: Will set the height to the same value as where you click. (press Ctrl for this action)

The image to the right shows the effect of feather on height map. From 0 feather to 100.

Set value is useful where you are going to be using stairs or ramps. Have height changes in increments of 5, the basics height of stairs is either 5 for small or 10 for larger. Also most walls have a value rounded to 5. It will make a much neater map. It is most useful in city maps to get the interesting level changes expected in the 40k world. Whilst getting the basic layout with set value, it is easier to then export and import the height map tga file to get crisp edges. (explained later in 3.2)

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Sample: Will set the height to the same value as where you click. (press Ctrl for this action)

The image to the right shows the effect of feather on height map. From 0 feather to 100.

Set value is useful where you are going to be using stairs or ramps. Have height changes in increments of 5, the basics height of stairs is either 5 for small or 10 for larger. Also most walls have a value rounded to 5. It will make a much neater map. It is most useful in city maps to get the interesting level changes expected in the 40k world. Whilst getting the basic layout with set value, it is easier to then export and import the height map tga file to get crisp edges. (explained later in 3.2)