



Ya3dag Editor

Based on V2.23 release of January 19, 2025

Edition history

12.07.2004 RR: First edition.
17.01.2005 GE: Reworked by Günter, Mouse menu.
25.05.2008 RR: Reworked
26.07.2008 RR: Translation to English.
30.07.2008 RR: Added a chapter about objects.
24.01.2012 RR: Updated based on V1.35 release of February 1, 2012.
19.08.2012 RR: Updated based on V1.40 release of August 19, 2012.
30.06.2013 RR: Updated based on V1.42 release of June 30, 2013.
18.01.2014 RR: Updated based on V1.50 release of January 19, 2014.
03.03.2018 RR: Updated based on V2.00 release of March 4, 2018.
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22.07.2018 RR: Updated based on V2.02 release of July 22, 2018.
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14.07.2023 RR: Updated based on V2.22 release of July 15, 2024.
08.01.2025 RR: Updated based on V2.23 release of January 19, 2025.

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1. Introduction

The Ya3dag editor allows

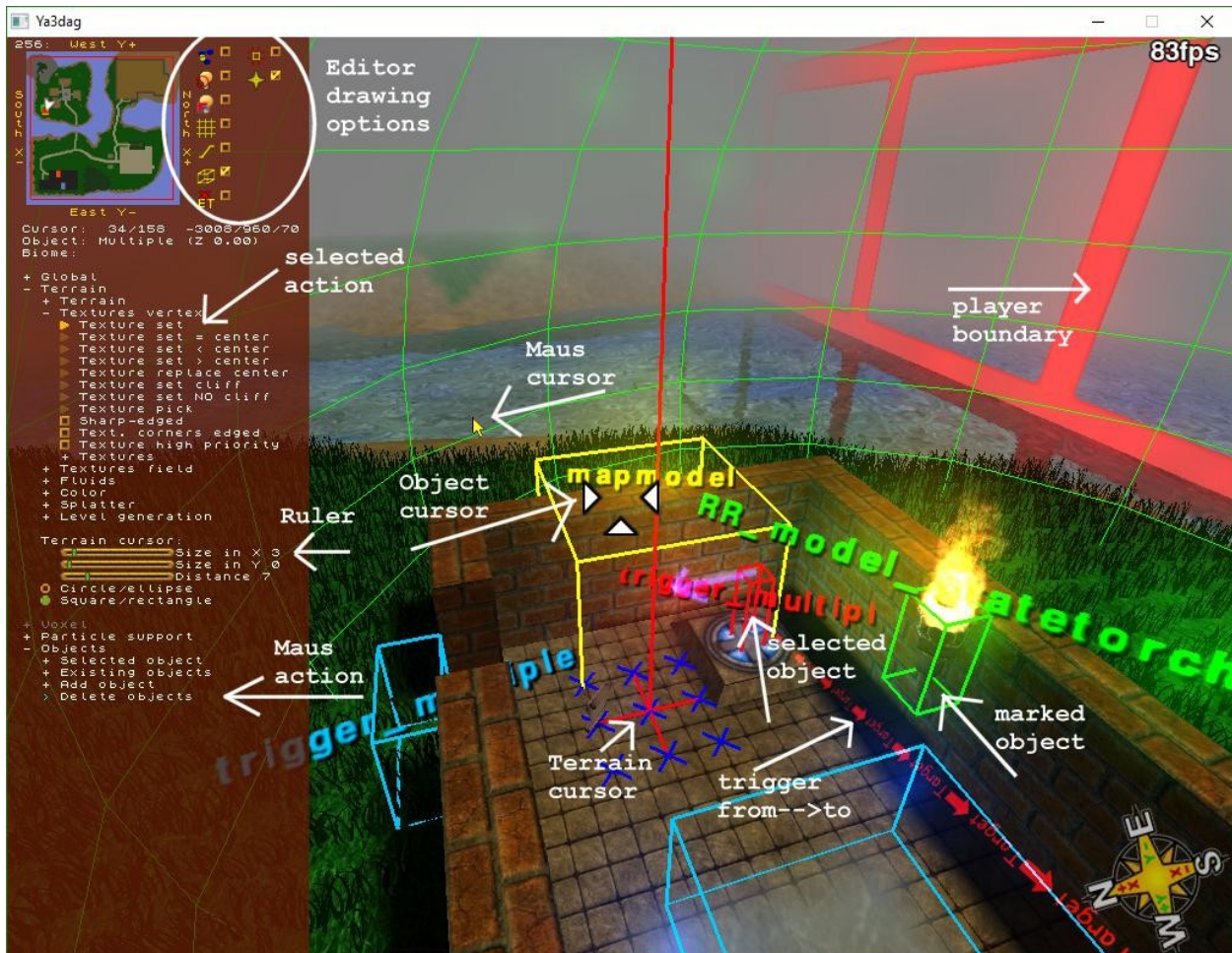
- Terrain creation/modification
- Texture the terrain
- Color the terrain
- Add splats to the terrain
- Water, lava, haze
- Models of type .md2 .md3 and quake 2 .bsp are managed here
- Lights. Shadows are seen immediately
- Way points are managed here
- Settings for sun, weather, clouds, ...

This is a **WYSIWYG** editor. What you see is what you get. You benefit from this if you move around lights and see the shadows. As often as possible you'll get a preview of what is inserted, or you see changes to objects ^{immediately} (e.g. skin selections).

2. Get the editor

- Press the **e** key to open the level editor.
See menu *,Options/Input/Key bindings,*.
Here the default for the key binding *,level editor'* can also be changed.
- With the console command 'edit'.
Open the text console with the **shift** + **escape** key. Then type **edit** and press the return key.

3. Screen layout and mouse usage



Terrain cursor

The terrain cursor is used for terrain modification. The number of blue crosses depends from the terrain cursor size. Terrain points with a blue cross are the target for terrain modifications. The red lines in the center of the terrain cursor are for better visibility only. The terrain cursor is placed in your view direction.

If the mouse is inside the scene view the mouse wheel changes the terrain cursor distance.

Object cursor

The Object cursor consists of three white arrows. If the mouse is moved in the scene area, it appears. Objects behind the object cursor get a yellow frame. Press the left mouse button to select the object. Press the right mouse button to mark the object.

Selected objects get a red frame and their settings are displayed in the Selected object submenu. Marked objects are used for targeting (more later).

MiniMap

In the upper left corner of the screen. Here a reduced terrain view is visible. The white arrow visualizes the viewpoint of the editor.

If the mouse is over the MiniMap, the terrain cursor is placed on congruent in the scene view. Press the left mouse button to execute the selected action (more about this later). Press the right mouse button to change the scene view to this location.

The red lines you see are the player boundary. The player can be only inside that rectangle.

The number above the top left corner is the size of the level in blocks and in chunks.

Menu

On the left screen side. Here you make selections or change settings. The menu is operated primarily with the **mouse**. Menu points are colored green if the **mouse** is over them.

Press the **left mouse button** to do something with the menu point. In the image above you see most of things: open/closed sub menus, checkboxes, radio buttons, rulers. The important thing here is the **selected action**. Dark arrows are candidates for it. The yellow arrow is the **selected action** (which is executed if you press the action key).

An menu line with a **light blue >** character at begin is a **mouse action**. Press the **left mouse button** to execute this action.

The scrollbars limits the number of submenu points (as can be seen in the **Existing objects** sub menu). Use the left mouse button to scroll down and the right to scroll up.

The **mouse wheel** is useful for scrollbars and rulers.

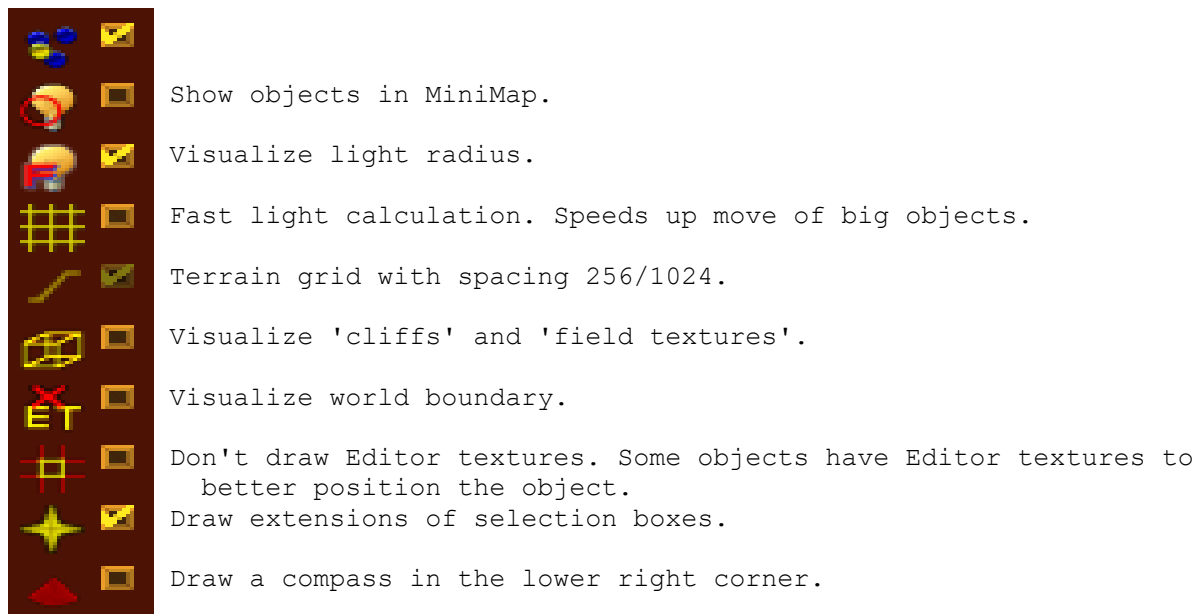
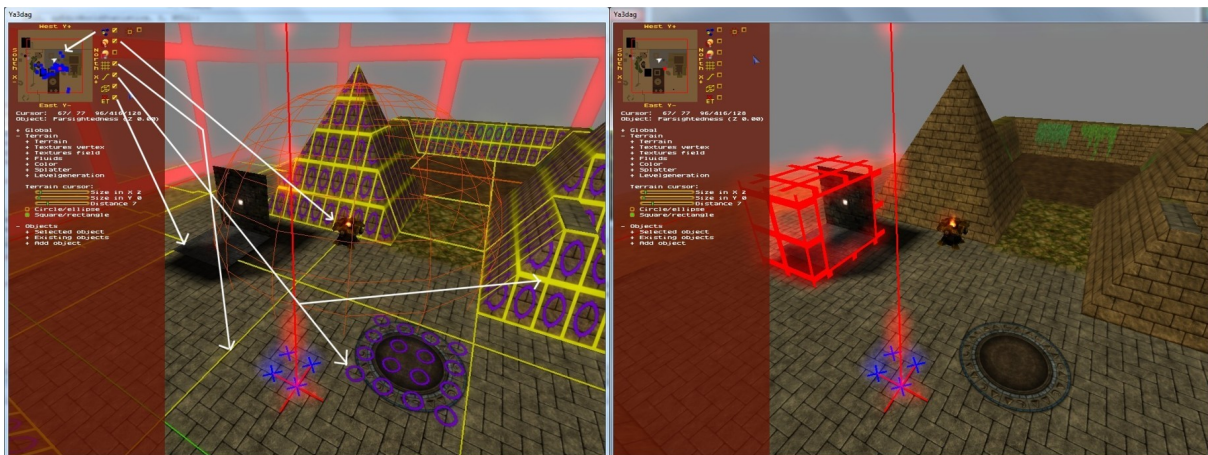
Scene

The right side of the screen. This is where the terrain and objects are visible. The three white arrows you see here is the **object cursor** (see above for more about objects).

The red line in the background (of the image above) is the player boundary. The player can be only inside the player boundary.

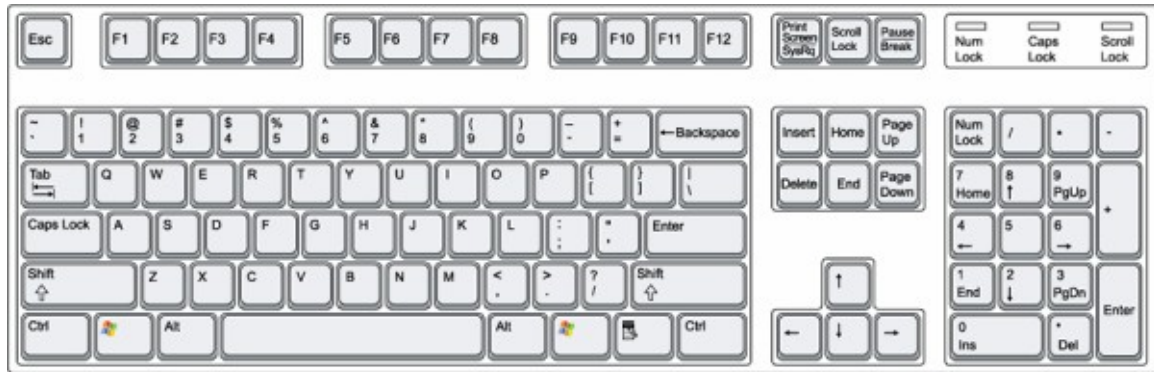
Editor drawing options

These checkboxes switch settings for the editor (mainly visualizations drawings).



Voxel Blocks with a redstone level > 0 are colored red.

4. Keyboard



Scene
view

Selected
object

Number block

This keys work with the [selected object](#).

<> ^ V: Objects position

By 16 units.

By 64 units while holding down the Shift key.

By 1 units while holding down the Ctrl key.

By 256 units while holding down the Shift and Ctrl key.

Additional press the Alt key to modify the size of some objects
(blue framed).

PgUp PgDn: objects distance relative to the terrain

By 16 units.

By 64 units while holding down the Shift key.

By 1 units while holding down the Ctrl key.

By 256 units while holding down the Shift and Ctrl key.

Additional press the Alt key to modify the height of some objects
(blue framed).

Home End: Objects angles

By 45 degrees.

By 11.25 degrees while holding down the Ctrl key.

Additional press the Shift key to change the PITCH angle.

Additional press the Alt key to change the ROLL angle.

5: Reset all object angles

+ -: Objects size

Modifies the 'Size Factor' field of some objects (.md2 and .md3
models).

Del: delete object (remove)

Cursor block

This keys affect the view of the scene.

< > ^ v: Move

By 64 units.

By 512 units while holding down the Shift key.

By 4 units while holding down the Ctrl key.

By 2048 units while holding down the Shift and Ctrl key.

Page Up Page Down: Height of view relative to the terrain

By 64 units.

By 512 units while holding down the Shift key.

By 4 units while holding down the Ctrl key.

By 2048 units while holding down the Shift and Ctrl key.

Insert Delete: Change view yaw angle

By 30 degrees.

By 90 degrees while holding down the Shift key.

Home End: Change view pitch angle

By 10 degrees.

Miscellaneous

Esc Leave the editor.

m Mark selected object.

t The field 'target' of the selected object and the field 'targetname' of the marked object will receive the same text (a time stamp). The marked object points to (or triggers) the selected object.
Pressing one of the numeric keys as modifier, the following alternate fields are used:

key	field
1	target
2	target2
3	killtarget
4	pathtarget
5	combattarget
6	deathtarget
7	movewith

spacebar Execute the [selected action](#) from the menu.
Press the Ctrl key pressed at the same time to:
* On insert of an objects, the terrain cursor's x size specify the number of objects to insert. This is good for eg forests.
* On creation of a new map, the current objects are not deleted. This enables you to change the map size without lose the objects.

r Terrain 'Raise' action.

l Terrain 'Lower' action.

f Terrain 'Flatten' action.

p Terrain 'Plateau' action.

n Terrain 'Uneasier' (or noise) action.

s Terrain 'Smooth' action.

d Daylight change.

g Switched lights on/off.

c Relight level, compute level lights and shadows.

w Insert an 'waypoint' object.

If the Ctrl key is pressed at the same time, the new 'waypoint' is connected with the a prior 'waypoint'.

Ctrl This key together with an other key is used shortcuts of actions. If it is usable, the shortecut is noted in the Help for this action.

Ctrl c Copy the [selected object](#).
This can be used also in text fields of the menu.

Ctrl v Paste object at the terrain cursor.
This can be used also in text fields of the menu.

Ctrl x Copy the [selected object](#) and delete it.
This can be used also in text fields of the menu.

Ctrl s Save the level.

Ctrl l Load/reload level from file.

Alt This key together with an other key opens a specific editor

menu. Other editor menus are closed.

F9 Saves the current level to clipboard
F10 Loads level from clipboard

Alt This key together with an other key opens a specific editor menu. Other editor menus are closed.

Alt g Open the ,Global' editor menu.
Alt t Open the ,Terrain' editor menu.
Alt v Open the ,Voxel' editor menu.
Alt b Open the ,Voxel/Block modification' editor menu.
Alt m Open the ,Voxel/Area modification' editor menu.
Alt f Open the ,Voxel/Flowing Liquids' editor menu.
Alt p Open the ,Particle support' editor menu.
Alt o Open the ,Objects' editor menu.
Alt a Open the ,Objects/Add object' editor menu.
Alt s Open the ,Objects/Selected object' editor menu.

5. Menu Global



The actions or settings in the **Global** menu work with the entire level. Below you see a brief description of each menu item.

Level:

Name of level to save or load.

Level save

This will be one of the most frequently used menu items. Save your level frequently so that no changes will be lost. Also the ,Ctrl s' keys save the level.

Level load

Load the level.

Level load from list

This is a list of all available levels. Open it to load each of these levels.

Save to clipboard

Saves the current level to a clipboard

Load from clipboard

Loads a level from the clipboard

Day-light

Change the daylight. Noon, evening or night.

Lightsources

Switched lightsources on or off.

Relight level

New lights/shadow calculations for the level.

Level flag: Terrain

Enable terrain for this level.

Level flag: Voxel

Enable voxels for this level.

Level flag: Sky-dome

When drawing the world a so called sky-dome is used. Switch it and or off to see the difference.

Level flag: Water (at height 0)

Water for the complete level. This is only used for enabled terrain.

Level flag: Waves

Waves at shorelines. This is only used for enabled terrain.

Level flag: Clouds

The sky is covered with clouds.

Level flag: Cliff drawing

For terrain with steep slopes, the texture is drawn differently. The textures are aligned in height.

Level flag: Underworld

Divides the world in upper world (with terrain) and underworld. The underworld exists beneath the terrain. It is intended for dungeons and interiors of buildings. In order to optimize the frame rate, the drawing process for the underworld and the grounds are separated from each other. The editor shows a green grid that separates the upper and underworld.

Level flag: Moon

Draw a moon.

Level flag: NO mob spawning

For voxel level only. If checked, no mobs will be spawned randomly.

Level size change

Change the size of the level.

Other level settings

Color of sun, clouds, ...

Clouds

Cloud specific settings.

Weather

Weather settings

Statistics

Shows the usage of resources.

Generate waypoints

Generate a network of waypoints.

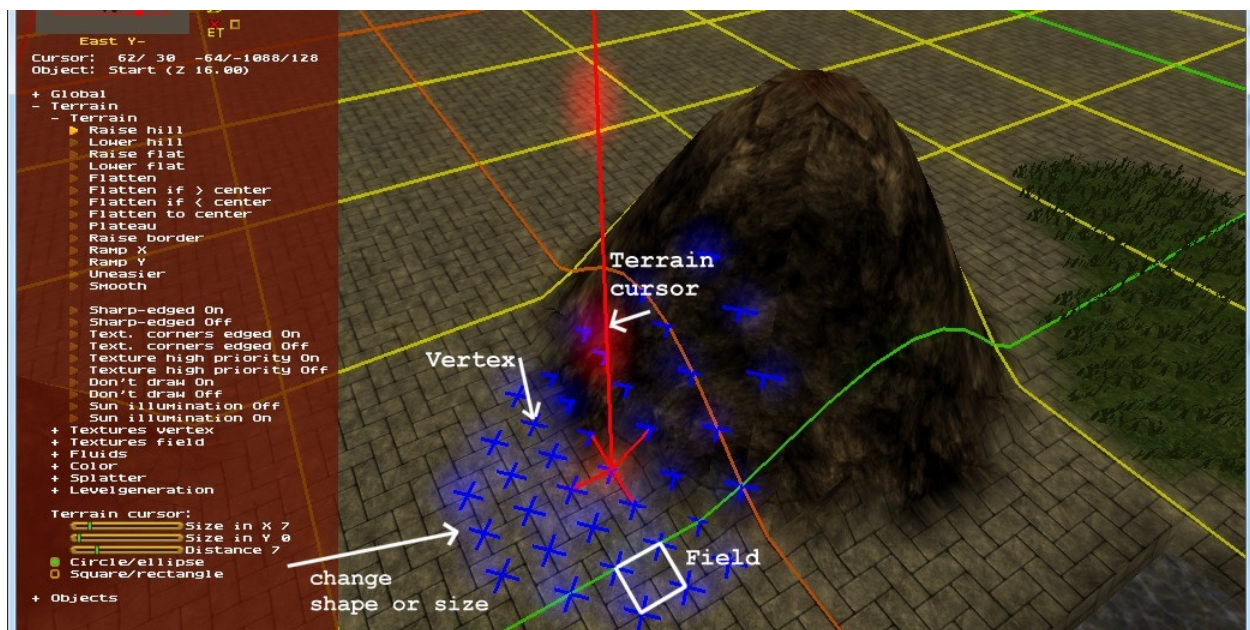
ATTENTION: All existing waypoints are removed!

Generate editor menu

Dump editor menu to the file RRGGameDocs/EditorMenu.txt. Get a snapshot of all available editor commands or settings.

6. Menu Terrain

The checkbox `,Global/Level flags/Terrain'` must be set to work with terrain.

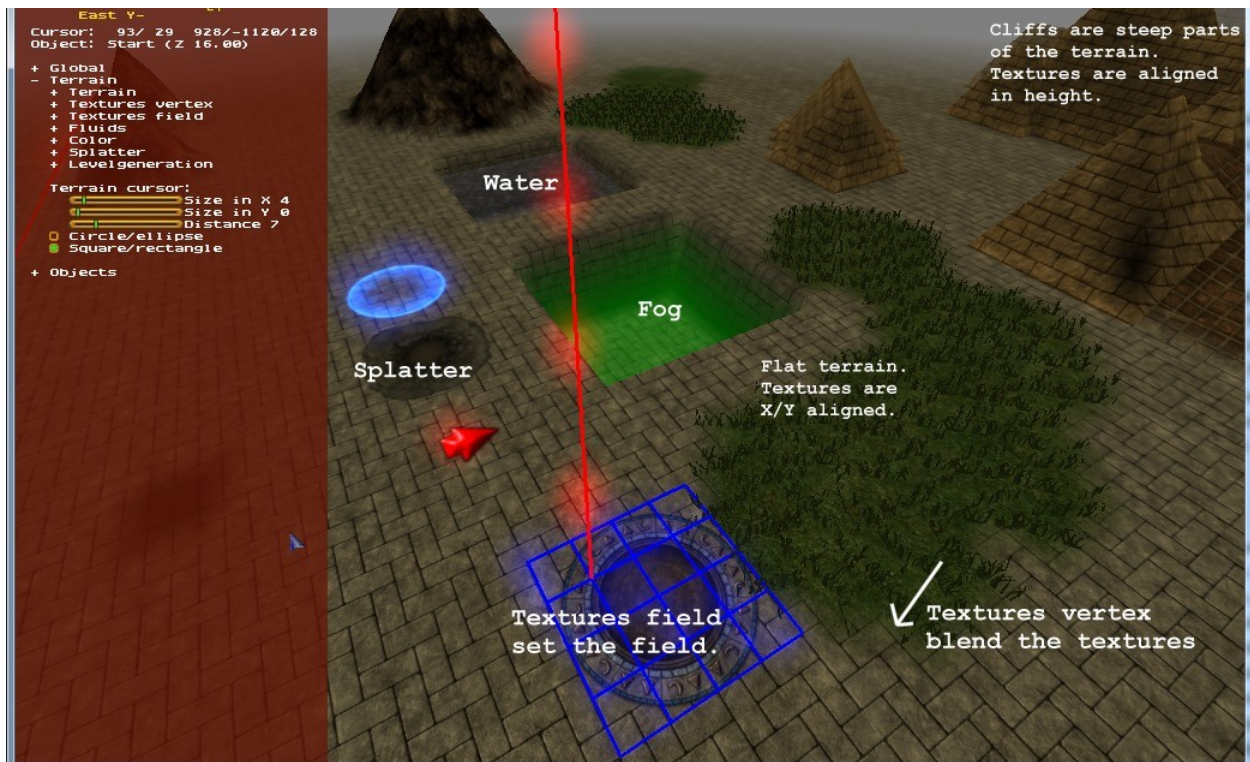


Terrain in Ya3dag is simply a large array of height values.

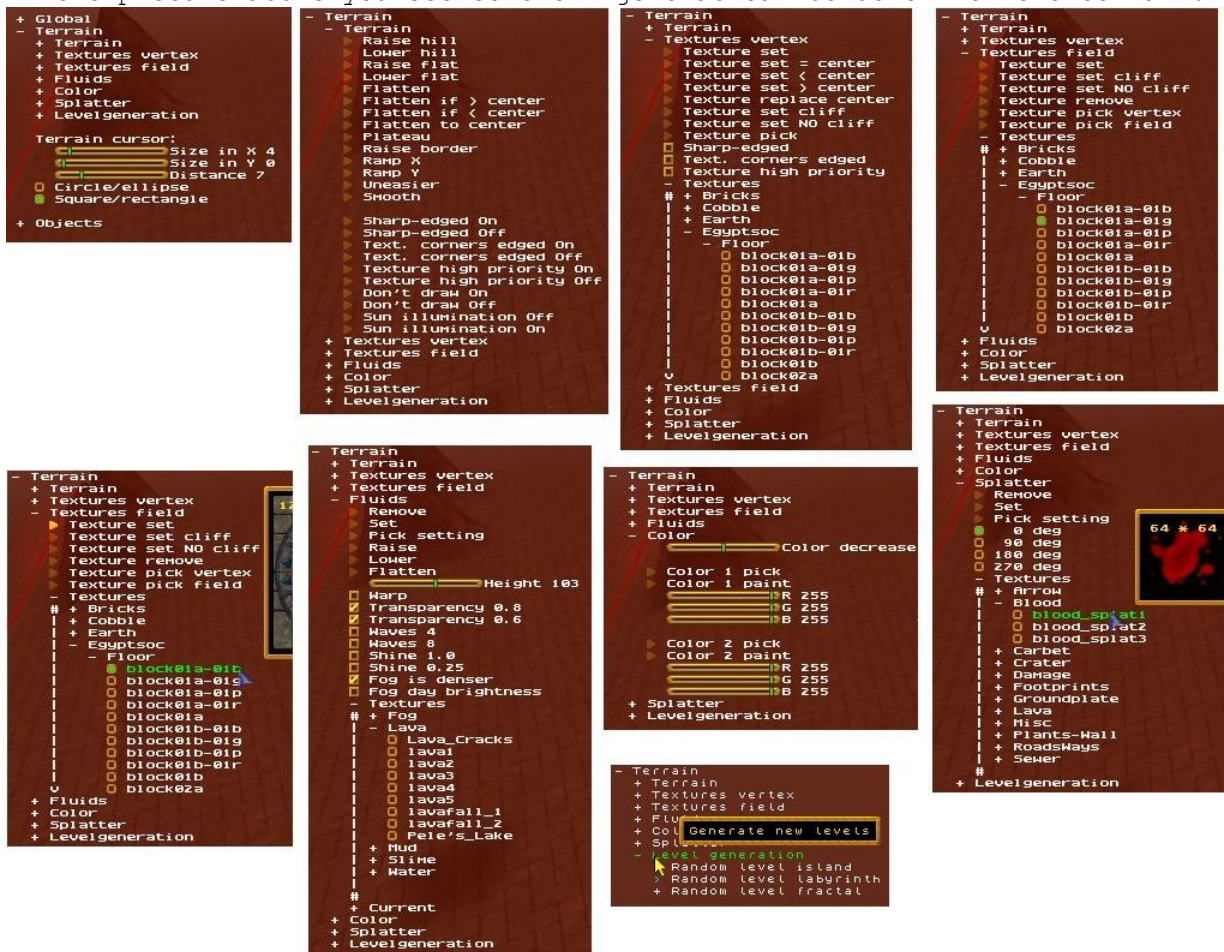
A **Vertex** is an array element with a height value. A **Field** are four adjacent **Vertex**.

Most of the terrain modifications work on Vertex. Changing the height of the terrain, change texture, coloring, ...

The **Terrain cursor** is the point of modification. Each small blue cross identifies a **Vertex**. In order to assist you for certain tasks, sometimes the color or the shape of this crosses will be adapted.



In the picture above you see some things that can be done with the terrain.



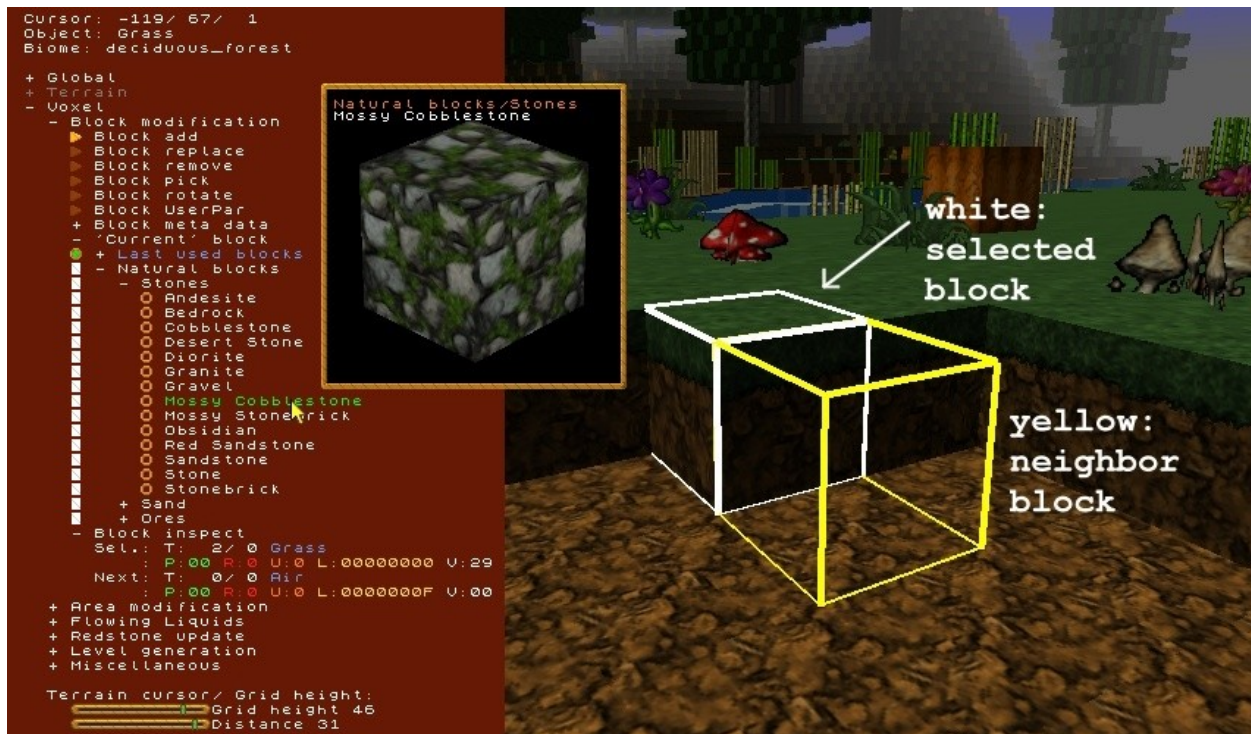
Above you can see screenshots of all terrain menus. Enjoy trying all Editor capabilities.

7. Menu Voxel

The checkbox `,Global/Level flags/Voxel'` must be set to work with voxels.

Since version 2.00 Ya3dag supports voxel terrain.

Block modification



The world is made up from blocks. The **Block modification** menu features single block modification.

The **white cube** frames marks the selected block. This one can be **replaced**, **removed**, **picked** as `,current' block` or **rotated** (if possible for the block). Move the mouse to the scene view to select a block.

The **yellow cube** is the neighbor of the selected block. Here a new block can be **added**.

Block meta data allows the modification of meta data associated with the last picked, added or replaced block. This allows the labeling of signs, the manual filling of chests, ...

The `,current' block` is the one which is incarnated to the world for add or replace operations. Pick the selected block or get a new one of its submenu.

Block inspect shows some information of the selected/neighbor blocks.

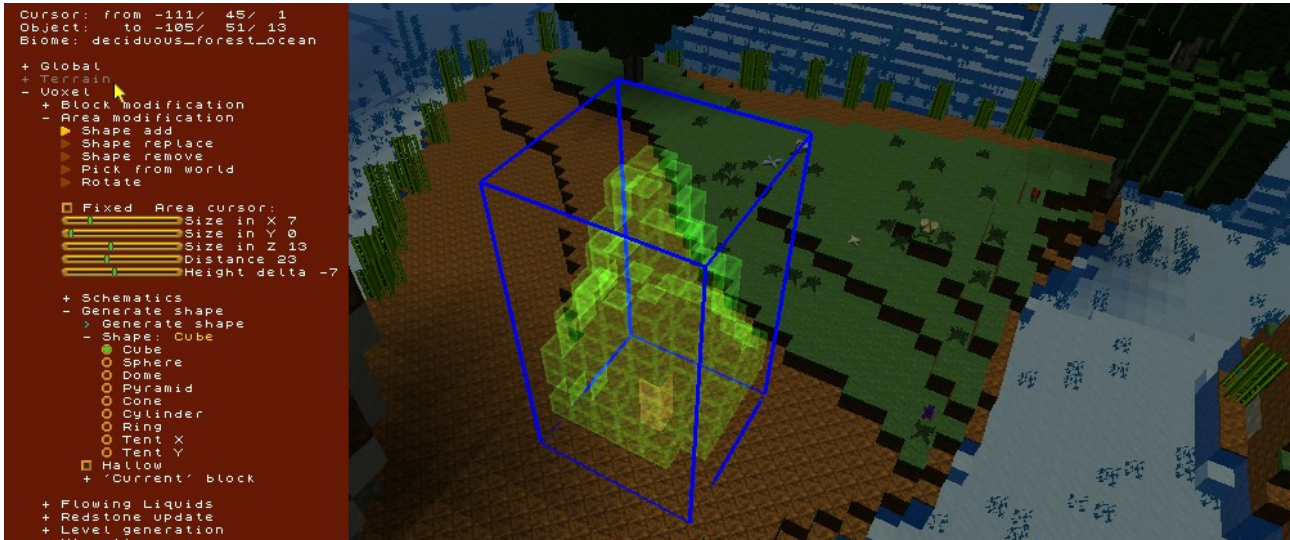
- T: block type (block code and name of block)
- P: block parameters (only for expert use)
- R: Redstone level of this block (only for expert use)
- U: block user parameter (only for expert use)
- L: block light information (only for expert use)
- V: block visibility information (only for expert use)

If the **Block modification** menu is open this keys can be used:

- Ctrl x Pick selected block as `,current' block` and remove it
- Ctrl Shift x Pick neighbor block as `,current' block` and remove it
- Ctrl c Pick selected block as `,current' block`
- Ctrl Shift c Pick neighbor block as `,current' block`
- Ctrl v Add the `,current' block` near selected block

Ctrl b Replace selected with ,current' block
 Ctrl Shift b Replace all blocks in the level that are of the same type as the selected block
 Ctrl r Rotate the block around Z axis (block must support this)
 Ctrl Shift r: Some blocks toggle models (like lever on/off)
 Ctrl u Increment block ,UserPar' parameter
 Ctrl Shift u Increment other parameter of some blocks

Area modification

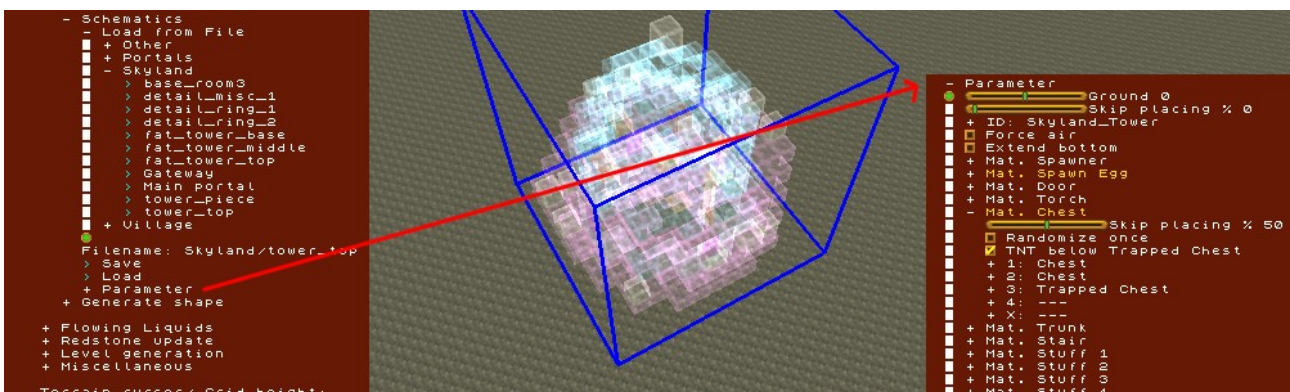


The **Area modification** menu features modification of cuboid block areas.

With the ,area cursor' sliders adapt the size of the cuboid. Change distance (mouse wheel) to get ,area cursor' closer / farther away. With height delta (Ctrl + mouse wheel) the ,area cursor' is shifted up/down. Block areas can be added to the world (keep existing blocks), are can replace all bocks inside the ,area cursor'. The blocks inside the ,area cursor' can be removed or picked as a so-called shape.

Check the ,Fixed' check box to freeze the position of the area cursor and show the cursor even when editing blocks. If the check box is selected during block editing while a ,foundation stone' is selected, the area of a scheme is detected and displayed.

,Generate shape' creates block areas from some built in forms.



Areas can be saved in a file as a so-called **schematic**. Saved schematics can also be loaded back into the ,area cursor'.

The ,Ground' slider sets the ground reference level. This is drawn when the value is non-zero. A ,Skip placing %' specifies block skipping. A value of 0 places every block, a value of 100 never place a block. If ,Force air' is checked, air blocks are placed. If unchecked, air blocks are skipped. If ,Extend bottom' is checked, the bottom layer is extended downwards through air.

`,Schematic helper blocks`` add functionality to schematic files. This block type is inserted into a schematic using `,Block add`` before saving to a file.

When a schematic (or voxel region) is placed into the world, these blocks specify specific block placement behavior.

- **Schematic Air**
On place force an air block.
- **Schematic Skip**
Skip placing any block.
- **Schematic Biome Ground**
When placed in the world, this block is replaced by the deep ground stone of the current biome.
- **Schematic Foundation Stone**
This block is generated when a schematic is added to the world. This block remembers the name of the loaded schematic. See 'Add schematic to world' below.
- **Schematic Corner Stone**
This block is generated when a schematic is added to the world. This block marks the corners of the loaded schematic. See 'Add schematic to world' below.
- **Schematic Spawn Egg, Schematic Spawner, Schematic Door, Schematic Torch Schematic Chest, Schematic Stuff 1 ... Schematic Stuff 8**
There are parameters for each of this block types.
There is a skip placing probability. Up to 4 blocks can be specified for random selection when placed. If placing was skipped, the X block will be placed ('---' places nothing).
NOTE: Only `,Mat. XXX`` menus with any set parameter are marked yellow.

To modify a schematic follow these instructions:

- Incarnate schematic to world
`Ctrl Shift V` adds a loaded schematic to the world. Schematic helper blocks are not replaced and seven corner stones and one foundation stone are added at the corner of `,area cursor``.
- Replace also with schematic blocks
`Ctrl Shift B` adds a loaded schematic to the world. Schematic helper blocks are not replaced.
- Pick blocks from world but keep schematics parameter.
`Ctrl Shift C` copies the blocks inside the `,area cursor`` and keeps the last schematic parameters. Use this after modifying blocks loaded into the world as above. After this, the schematic can be saved to file. Make sure the file name is correct.

Flowing liquids



The **Flowing liquids** menu features manipulation of flowing liquid blocks.

Remove

Remove all flowing liquid blocks from the level. The liquid source blocks stay.

Flow all

Maximum liquid spreading.

Flow 1 step

Each mouse click spreads the liquids by one more step (or block). For the best effect, the fluent liquids should first be removed.

This menu item provides a deeper insight into the spreading of liquids.

What you should know. Comments for designing level.

Loading a level for the game a **,flow all'** processing is done for the complete level. Loading a level inside the editor no modification of flowing liquids are done.

The recommendation is to save the levels without flowing liquids blocks. This approach allows easier change of liquid source blocks.

Redstone update



The **Redstone update** menu offers functions for playing around with redstone power.

Reset

Reset redstone levels of all blocks to zero.

NOTE: each block holds a redstone power level (0 to 15). This level can be visualized with a checkbox at top of the editor pane.

Update all

Redstone update for the level.

After resetting the redstone level of all blocks the distribution of redstone power is recalculated for the entire level.

Update 1 step

Each mouse click performs one redstone update.

During the game, this redstone update is performed every 1/10 second.

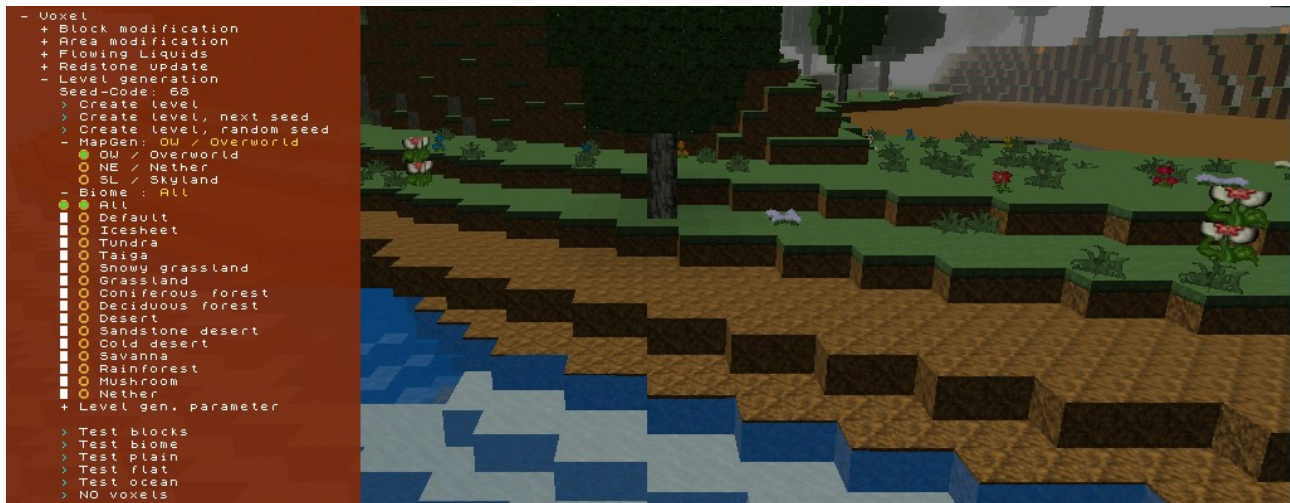
Use this after 'Reset' to see the redstone update working.

NOTE: The show case level 'Test-Structures' shows usage of redstone components.

What you should know. Comments for designing level.

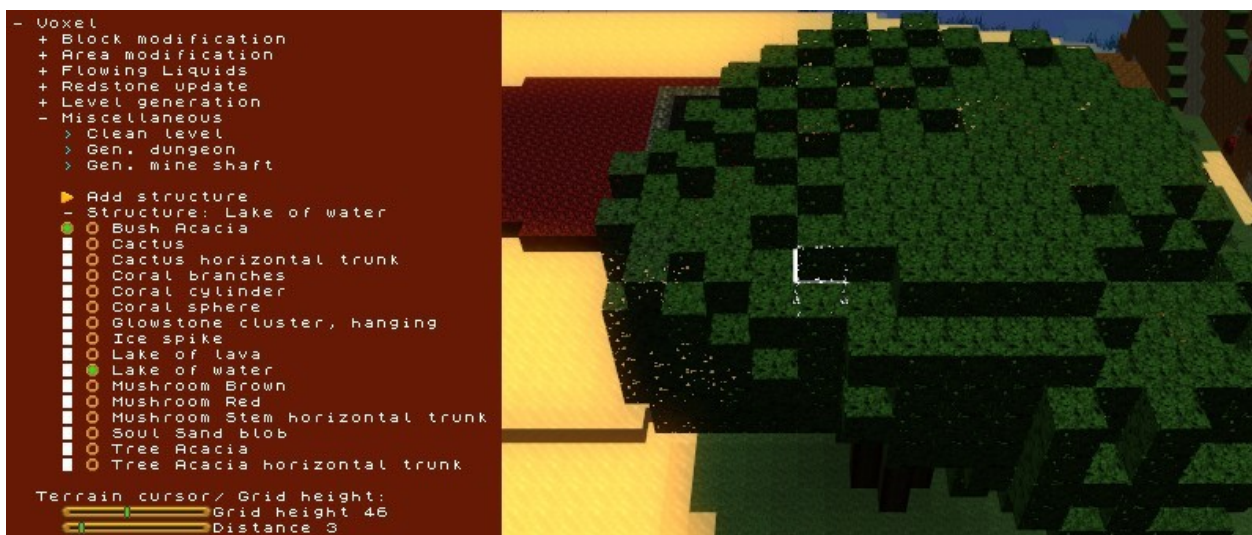
Loading a level for the game a **,update all'** processing is done for the complete level.

Level generation



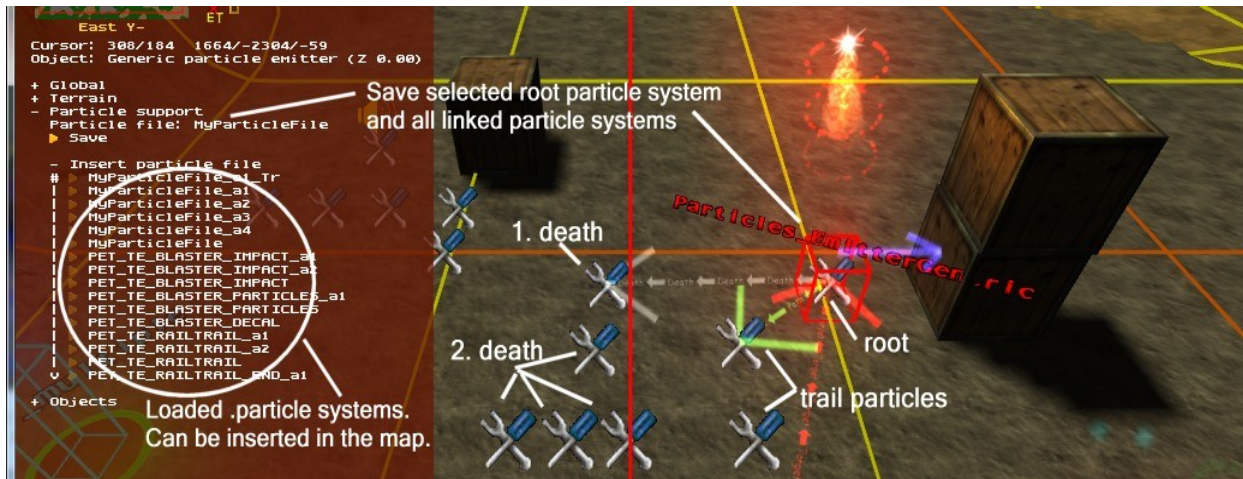
Play around with random level generation. With the possibilities offered, a variety of levels can be generated.

Miscellaneous



Various voxel-related tasks are at home here.
Note the help text pop up of the various menu items.

8. Menu Particle support



Ya3dag has a built-in particle engine. This was already used to run the particle effects for weapons, impacts, explosions and ...

Since Ya3dag an entity **Particles_EmitterGeneric** can be added to the map (Objects/Add object/Particle Emitter/Generic particle emitter). Particle systems can be built by linking multiple **Particles_EmitterGeneric**.

Target another particle emitter with the **t** key and the key

1	target	up to 4 particle emitters can be associated
4	pathtarget	for particle trails
5	combattarget	particle bounce, execute particle system
6	deathtarget	is executed if a particle dies

to build particle systems.

If the root particle entity targets something other than a **Particles_EmitterGeneric**, we have a beam type particle system.

The particle systems can be triggered by an **trigger_multiple** (or other trigger sources).

Save: If a **Particles_EmitterGeneric** is selected, this particle system and all associated other **Particles_EmitterGeneric** are saved to **Particle file** in the scripts subdirectory. This file can be reworked to replace one of the built-in particle effects.

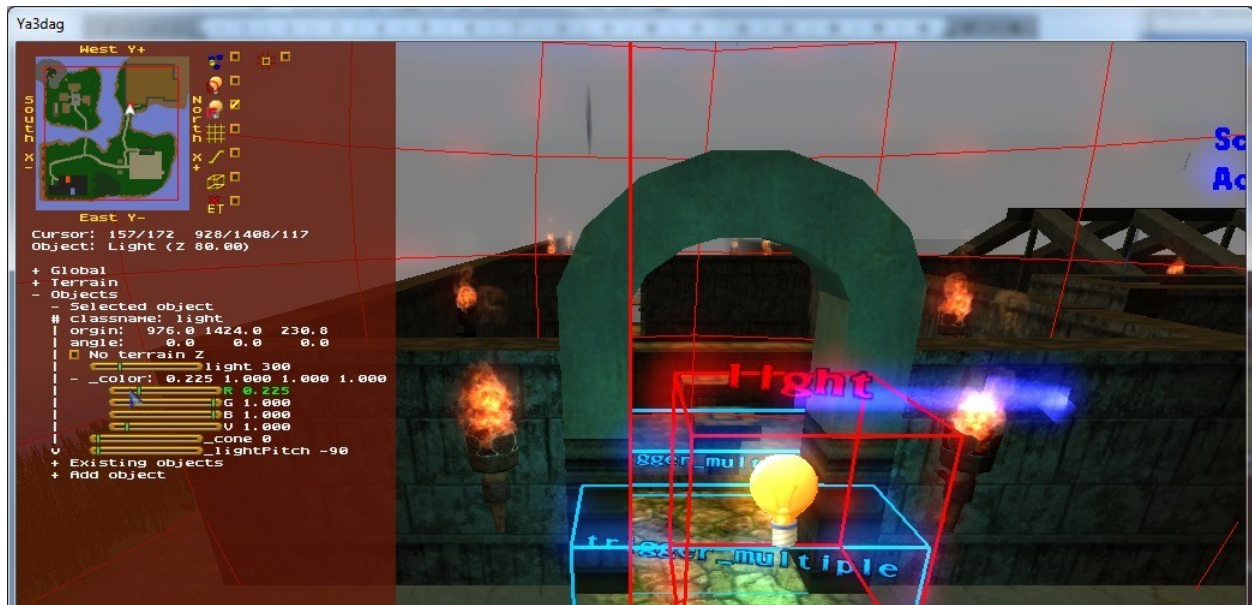
During startup of an level, all **.particle** files from the scripts subdirectory are loaded. Depending from the name of the root particle system in such a file, one of the following built-in particle effects can be replaced.

Name of effect	Effect to replace	Remark	Type
PET_TE_BLASTER_IMPACT	TE_BLASTER	impact	PosDirDecal
PET_TE_RAILTRAIL	TE_RAILTRAIL		Trail
PET_TE_RAILTRAIL_END	TE_RAILTRAIL	end point decal	PosDirDecal
PET_TE_EXPLOSION1	TE_EXPLOSION1		Pos
PET_TE_ROCKET_EXPLOSION	TE_ROCKET_EXPLOSION		Pos
PET_TE_ROCKET_EXPLOSION_WATER	TE_ROCKET_EXPLOSION_WATER		Pos
PET_TE_PLAIN_EXPLOSION	TE_PLAIN_EXPLOSION		Pos
PET_EF_BLASTER	EF_BLASTER		Trail

More to come ...

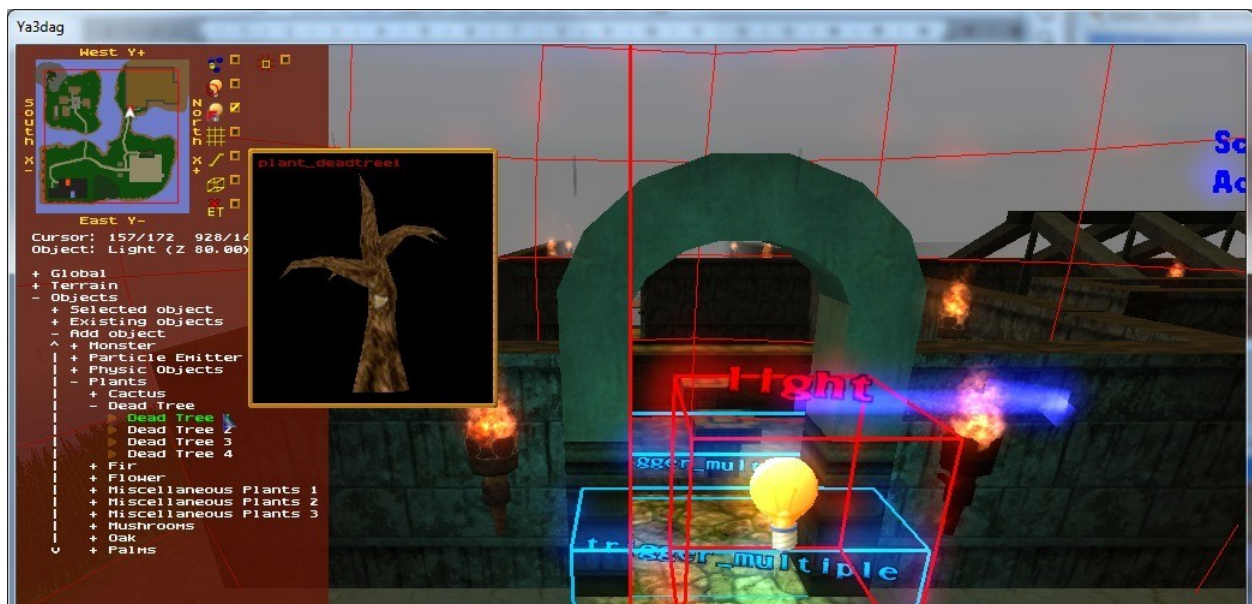
Via **insert particle file** the loaded particle files can be inserted in the map as a particle system.

9. Menu Objects

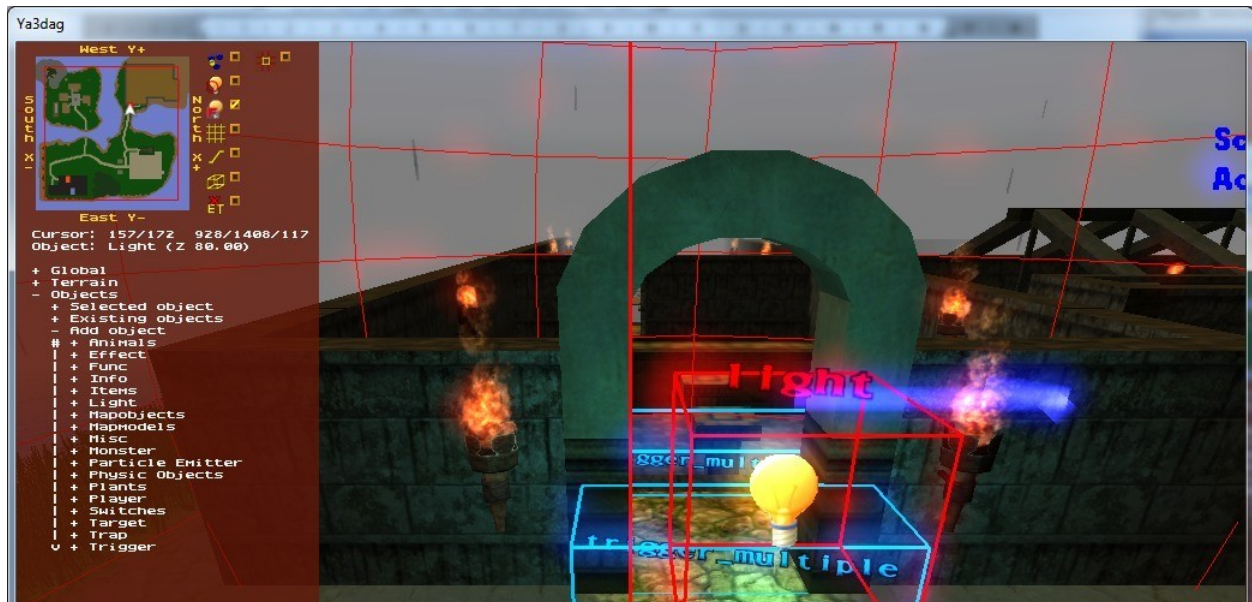


Above you see the **selected object** sub menu. Here the properties of the object with the red frame are displayed. **classname** is quake 2 specific. This property distinguish one object type from an other. The properties **origin** and **angle** are modified with the keyboard. The other properties are modified in this menu. Ruler are changed with the left mouse button or the mouse wheel or the cursor keys. Have a look to [Ya3dag\RRGameDocs\Lazarus\index.html](#) to learn more about objects and properties.

The **Object:** just below the MiniMap names the selected object and it's distance relative to the terrain.



Where appropriate, you see a help window (with preview of models). If the mouse is over an appropriate menu item, you can also listen to level music or the sounds of a target_speaker. So turn on your speaker.



Above you see the [Add object](#) sub menu with the group of objects which can be added. Following some comments on these object groups.

Animals are not monsters. They are level decoration. Where they placed in the level, they walk around.

Plants are also level decoration. Usually, they can play ambient noise, such as a Birdsong.

Light is a collection of light sources. Change the colour, style or range.

Mapobjects are .md2 or .md3 models and also level decoration. You can find Skeletons, dead animals, vases and such things here.

Mapmodels are .bsp models. Larger buildings are made out of several small .bsp models. You can find bridges, cargo boxes, graves, walls and such things here.

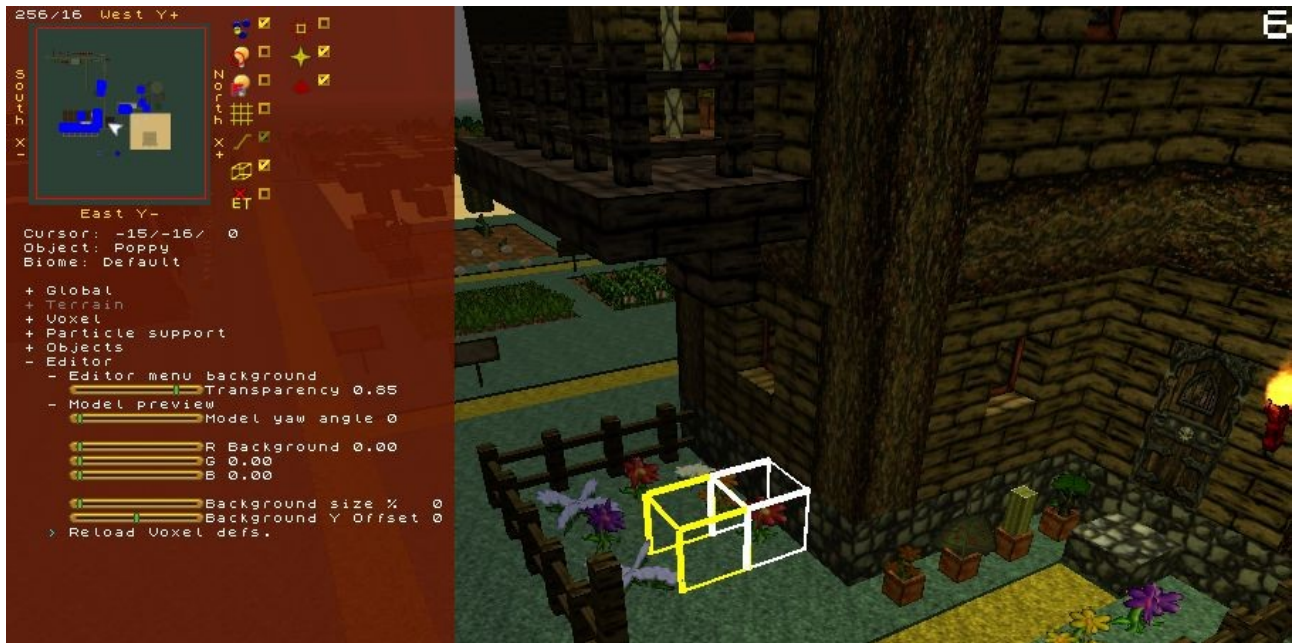
Particle Emitter is a sort of active level decoration. Smoke, stars, fog fields and more is here. Note that some of this objects can be changed in size. The height affects the number of particles.

Physic Objects are the interface to the [bullet](#) physic simulation. Look at the examples in level ExhibitionPhysics, to learn how to use them.

The most interesting thing in **misc** is the actor object. This are the models of the smart NPC's. Each quake 2 or quake 3 player model can be used.

Waypoints are found in '*misc/Move points*'. NPC's use them for orientation in the level. Give it a name, so that the NPC know where they go. Waypoints are connected with the t key (see the keyboard description).

10. Menu Editor



In this menu editor settings can be adjusted.

Editor menu background

Modify the transparency of the editor background.

With a value of 0.0 the background is not visible, with a value of 1.0 the background is not transparent.

Editor menu background

Model preview box settings.

NOTE: These settings will be reset when the application starts.

This is useful when screenshots of models are needed. For example, for icons or images for manuals.

Reload Voxel defs.

Reload voxel block and biome definitions. Use after modification of definition files **Voxel-Blocks.txt** and **Voxel-Biomes.txt**.

11. For the advanced

11.1 Using original quake 2 monsters

Ya3dag is a quake 2 modification. As such also the original quake 2 models can be used.

The original Quake 2 models are not part of ya3dag (for copyright reasons). If you own quake2, copy the pak0.pak file from the directory quake2\BaseQ2 to Ya3dag\BaseQ2 and you got them.

If you don't have pak0.pak you seed an image 'Missing model' in place of the models.

11.2 Go to the max

The file Q2T_BaseQ2.pkz in the directory Ya3dag\BaseQ2 and the file Q2T_RRGame.pkz in the directory Ya3dag\RRGame are .zip files. Rename this files to have a .zip extension and extract the contents. Now you can add more/new media by simply copy it into the appropriate directory.

Ya3dag\BaseQ2\players

Player models are used as NPC's (are actors).

Ya3dag\BaseQ2\textures\Q2T\tex

Terrain textures. There is a read me file in this directory.

Ya3dag\BaseQ2\textures\Q2T\Splats

More terrain splats.

Ya3dag\BaseQ2\textures\Q2T\Water

More water, lava, ... textures.

Ya3dag\RRGame\music

More level music.

Ya3dag\RRGame\sound or Ya3dag\BaseQ2\sound

Copy a .wav file to one the subdirectories ambience, ambient, ambient/inside, ambient/outside, RRMisc, world add a new sound for a target_speaker.

Ya3dag\RRGame\scripts\Items.txt

Add/change items for the game.

Ya3dag\RRGame\RRGame\quake2RR.ent

The last editor challenge. This file describes the [Add object](#) sub menu.