Battlefield Simulators

As of Unleashed version 1.22, there are now two ways to preview the battlefield terrain at any given location for a given map, or for any other tile.

Using the hotkey **SHIFT+Click** tells Unleashed to establish a communication protocol with *homm3_battlefields*. This is done by a HTTP POST request to localport:7777 (talking to yourself) telling anyone who's listening that we would like to see what the terrain at a specific location looks like. To achieve this, you need:

1- Launch *homm3_battlefields*
2- Enable the communication protocol within Unleashed (hotkey Ctrl+Alt+B)
3- Shift+Click any tile on the map

If *homm3_battlefields* is not active, a HTTP POST request is still sent, a failed connection is disabled after 1 millisecond so you should not perceive any delays.

For more details about *homm3_battlefields* refer to its homepage.
https://github.com/jtakacs/homm3_battlefields

The second way uses the same hotkey **SHIFT+Click** but the command is sent internally to the newly built-in *Battlefield Explorer*. The simulator is silently launched in the background of Unleashed and can be viewed using the hotkey (Ctrl+B) or through the menu bar.

You can turn off *Battlefield Explorer* at any time by pressing the same hotkey (Ctrl+B), by pressing the 'X' button in the top right corner or by using the Unleashed menu.

When the hotkey SHIFT+Click is used, the normal functionality of the map editor is ignored–your underlying terrain and objects will not be modified.

Although all 19 battlefields and all 252x252 locations are supported by *Battlefield Explorer*, the exploration range is limited to the size of the map currently open. Once you open a new map, these restrictions will be readjusted.

I highly recommend **kazmer**'s *homm3_battlefields* for its ability to search for patterns.

Using Battlefield Explorer

You can navigate the surroundings with the following hotkeys. The WASD and ARROWS navigation are modeled after common game movement and the map editor's own hotkeys.

DESCRIPTION	HOTKEY
Increase X	RIGHT
	D
Decrease X	LEFT
	A
Increase Y	DOWN
	S
Decrease Y	UP
	W
Increase Terrain	G
Decrease Terrain	T

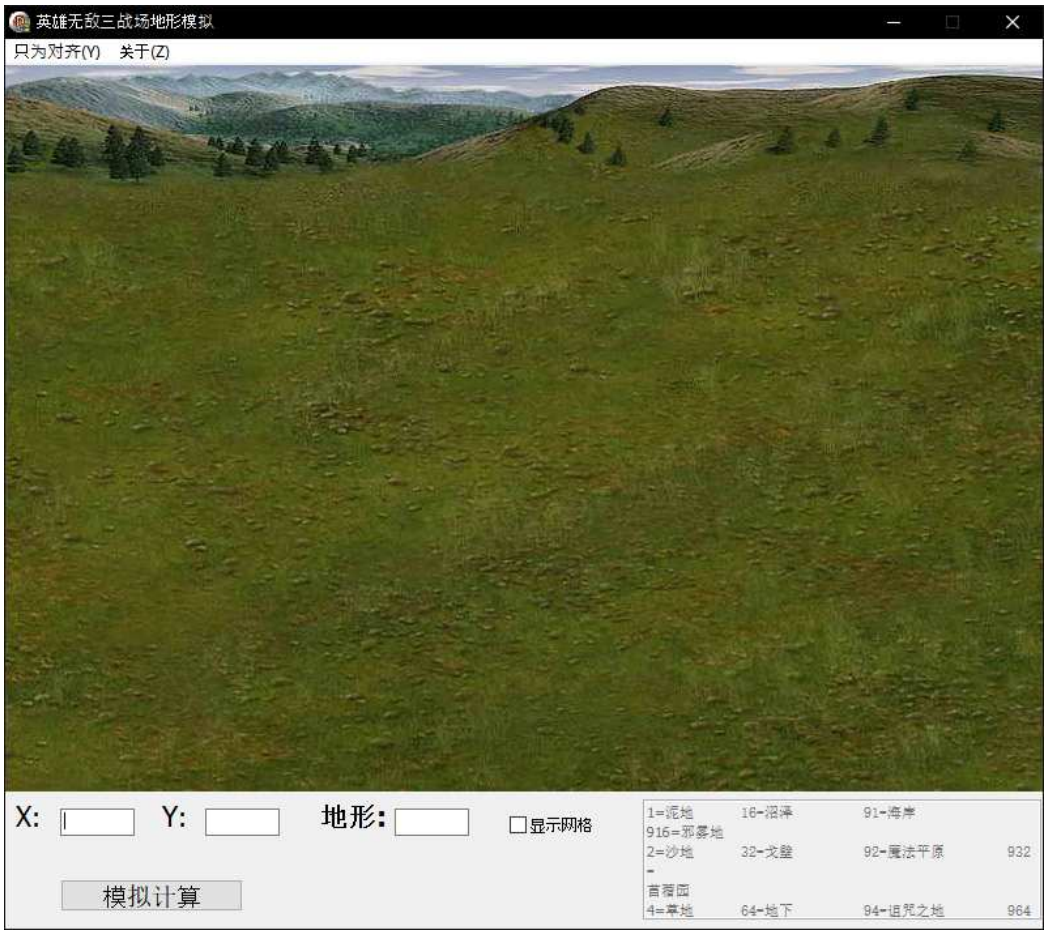
There are 7 customizable options with *Battlefield Explorer*:

NAME	DESCRIPTION	HOTKEY
Grid	Draws hexagonal grids on the battlefield.	H
Shadow	Adds shadow to available cells on the battlefield. This setting requires the Grid to be active.	J
Coordinates	Adds the coordinates of the cells on the battlefield.	K
Obstacles	Draws the battlefield obstacles at their respective position.	O
Anchors	Indicates where the anchors for obstacles are located. Anchors are used by homm3 to determine the drawing location of features such as obstacles, firewall, forcefield.	L
War Machines	Draws War Machines at their expected location on the battlefield. When active, blocked cells by War Machines are not darkened by the Shadow option.	M
Passability	Draws opaque hexes over blocked cells to make it absolutely clear which cells are occupied. The black hex is reserved for absolute obstacles, the ones which cannot be removed using the spell 'Remove Obstacle'.	P

A brief history of battlefield simulators

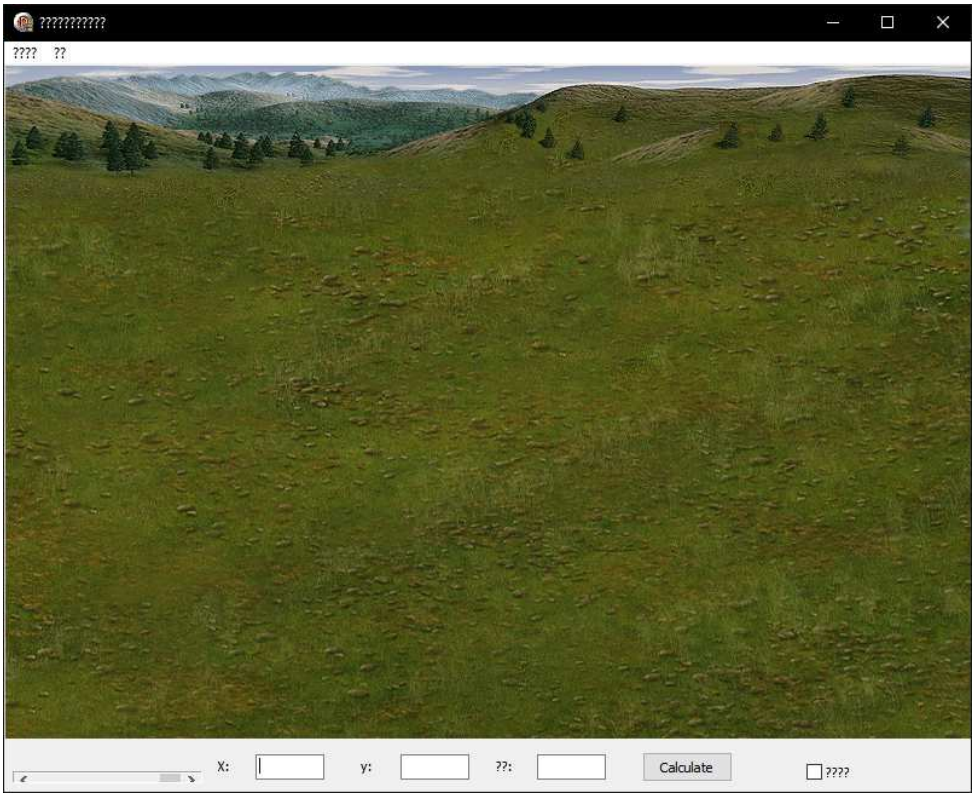
This is by no means meant to be exhaustive but covers what I have encountered.

Back in 2008, a user on the Gamerhome forum released an application written in Pascal to preview battlefields. **gu7979gu**'s initial release worked only for the 8 regular terrains although a later revision also supported all 19 combat terrains.



gu7979gu's battlefield explorer 1.0

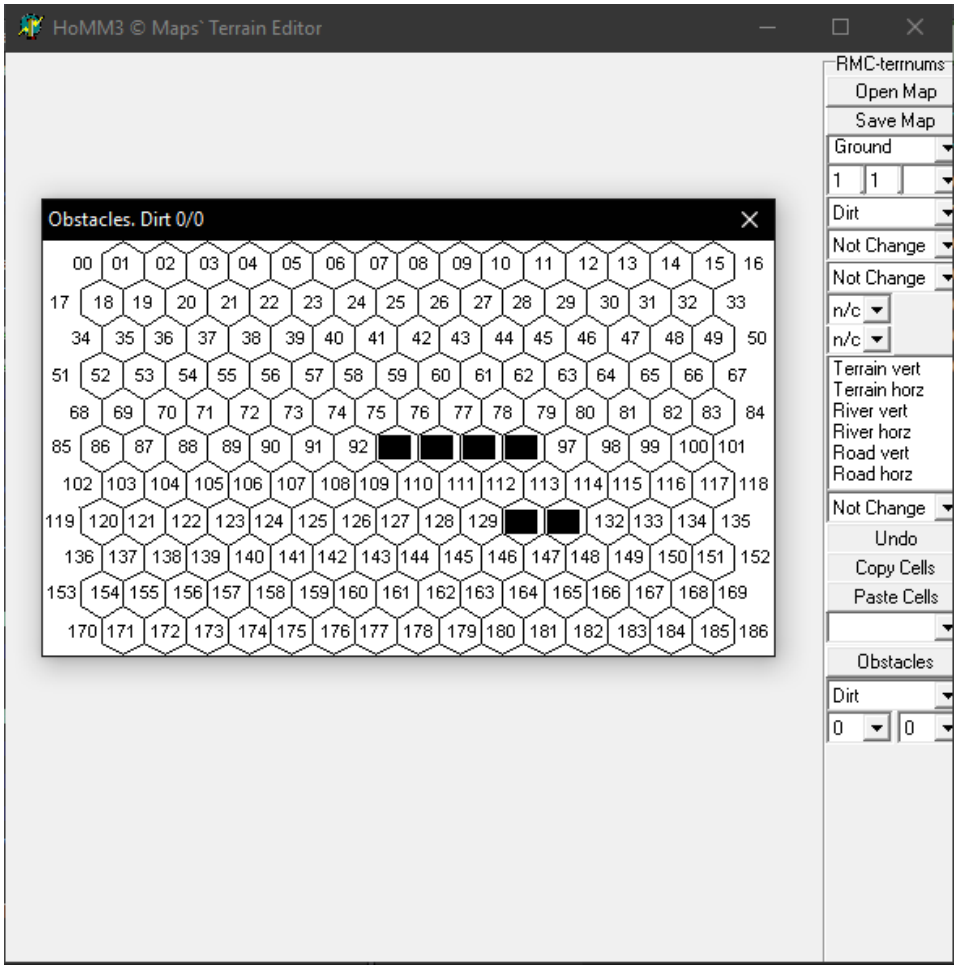
The tool was used by a lot of mapmakers to find special terrains where humans could defeat AI enemies against normally unsurmountable odds. For example, the map *Nine Riddles* required the hero to pick a path amongst many where one could take advantage of protected terrain.



gu7979gu's battlefield explorer 1.1

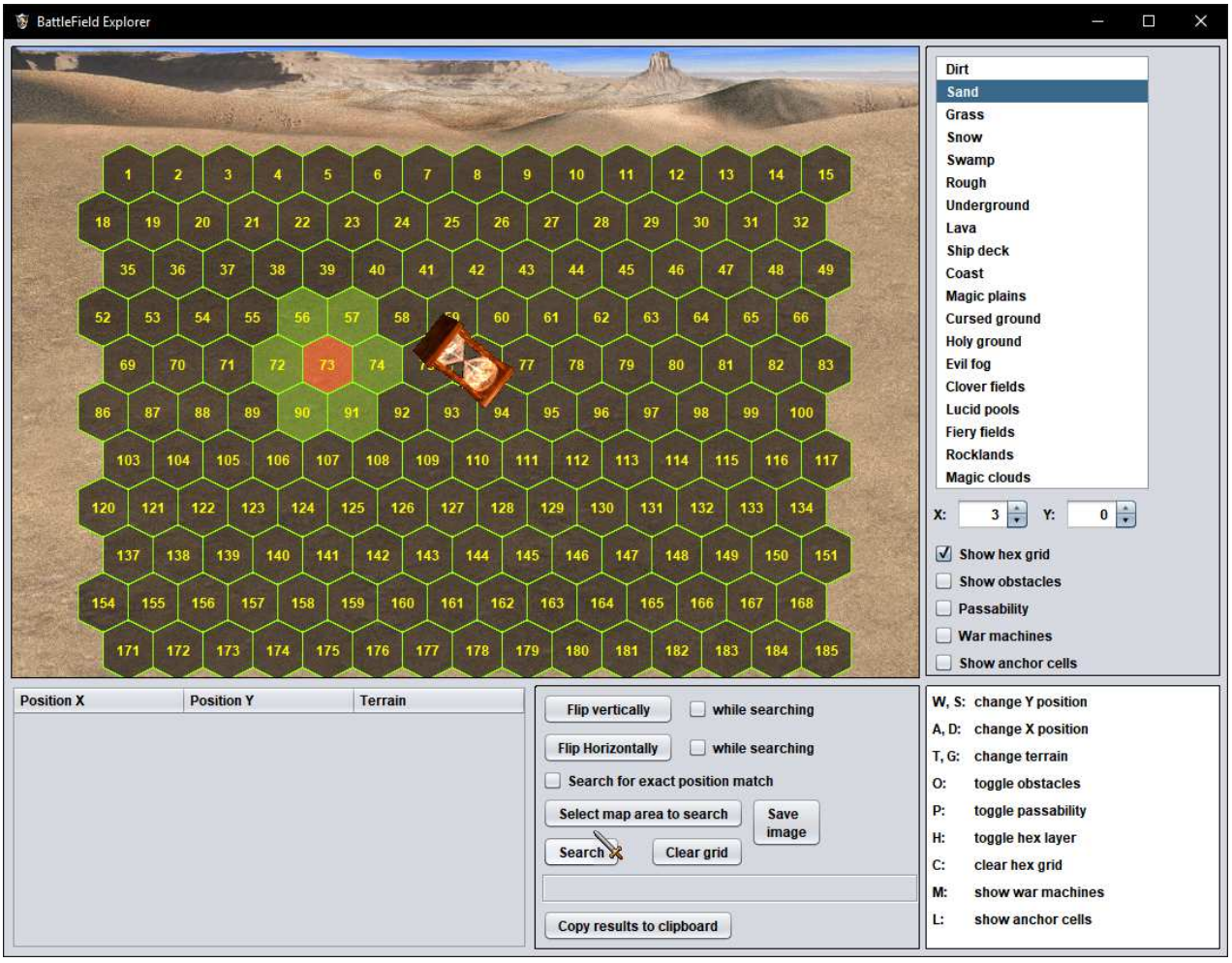
Nine riddles

In 2009, **pHOMM** released *h3mtered*, a standalone map terrain editor based on reversal of the h3m format. Included with the tool was a text dump of all blocked tiles for the 8 regular locations, boat deck and coastal locations, for a 144x144 map. It is not known how the obstacle dump was obtained but possibly coded in Pascal as the rest of h3mtered.



h3mtered's obstacle preview

In 2017, **kazmer** created the *homm3_battlefields* tool using Java. Not only did it correct some bugs existing in **gu7979gu**'s version, but it also allowed users to search for obstacle patterns. This was achieved by storing all valid locations in memory using bitfields and comparing the sought pattern against the stored battlefield locations.



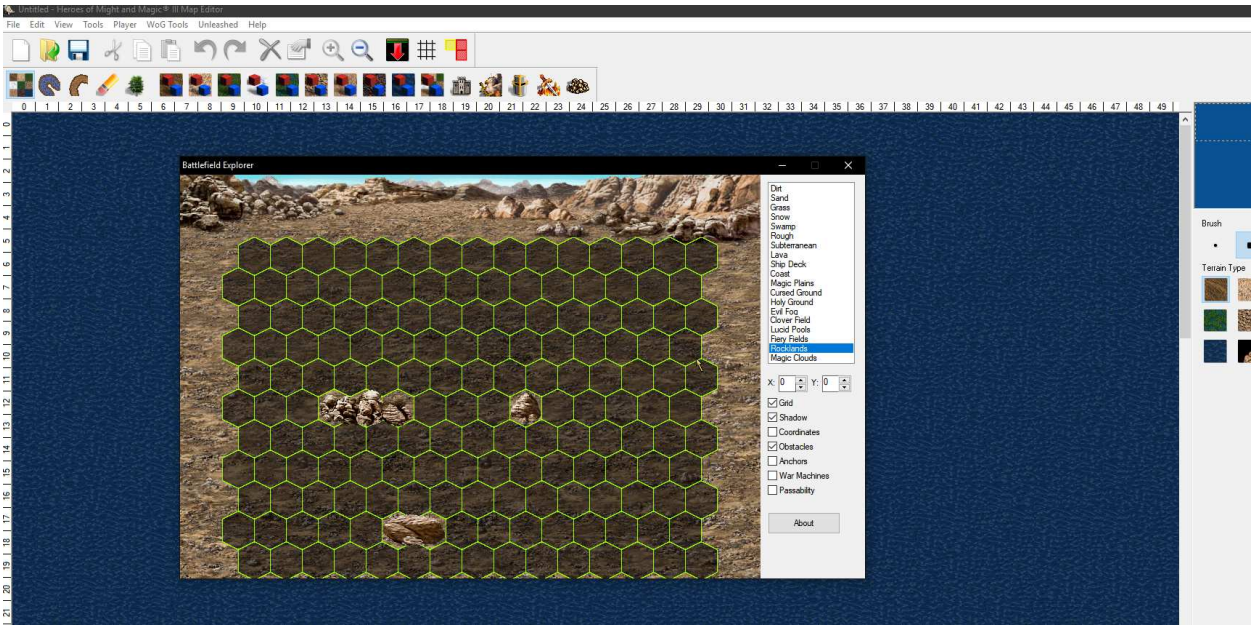
homm3_battlefields

In 2020, **kazmer** added port listening to allow remote control of *homm3_battlefields*. This was great news as we could finally have an easy way to quickly preview what the battlefield would look like at any spot for a given map.

Unleashed map editor is based in C++ which does not feature default networking libraries. As I am not versed in networking, I unsuccessfully tried to make communication possible between Unleashed and *homm3_battlefields*. After some time, I simply gave up as the loss of time did not seem worth the effort.

After further discussions with **kazmer**, issues were eventually resolved to make the communication protocol not dependent on Windows-only functionality, almost exclusively thanks to him. There is still no satisfactory way to launch *homm3_battlefields* from Unleashed, that step must be done by the user.

In between the time I initially gave up on linking both projects and the time a solution came up, I had decided to provide a built-in battlefield explorer within Unleashed. By the time the communication protocol was finalized, Unleashed's *Battlefield Explorer* was complete. It is not as full-fledged as *homm3_battlefields* (no pattern search) but it should be highly portable. All 1,206,576 combat locations have been verified to be identical between the game's algorithm and *Battlefield Explorer*.



Battlefield Explorer