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A. Welcome *Knytt Experiment* Level Editor!

With *Knytt Experiment* Level Editor, you can create your own levels using Nifflas' experimental game engine. This guide explains everything you need to know to create quality levels.

B. Getting Started

To build new levels for *Knytt Experiment*, you will need at least two programs: *Knytt Experiment.exe* (the game) and *Level Editor.exe* (the experiment editor). Both programs can be downloaded in one single file, from the official *Knytt Experiment* website. (Click the address below to start the download.)

<http://www.ni2.se/files/games/KnyttExperiment10.zip>

Once you have downloaded and installed the game and the editor, you are good to go!

C. Launching the Experiment Editor

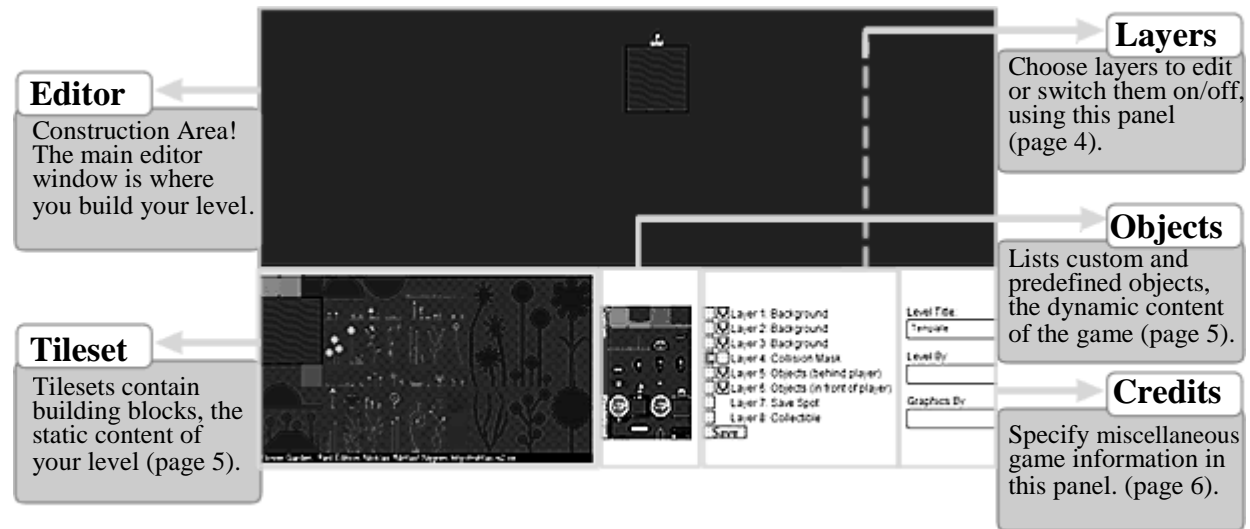
To launch the Experiment Editor, go to your *KnyttExperiment* folder and double-click the file titled *Level Editor.exe*, which will bring up the following screen:



From there on, there are three ways to proceed. Either load an existing level from the list provided on the left of the screen, or create a new blank project by filling in the project title field under **Create / import a new project** and then click on the *New* button below. Clicking on the *Import* button instead lets you start your new project based on an existing .kexp map file.

D. Experiment Editor Interface At a Glance

Let's take a quick look at the main components of the Experiment Editor:



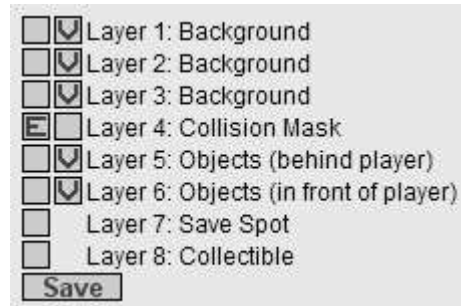
E. Features Explained

Composed of only five panels, the Level Editor interface is simple and intuitive. Thus the key to efficient Knytt Experiment level design is not about knowing where to get certain things done, but about knowing how to get the most out of each function. With that in mind, below we will take a detailed look at each feature, in order of importance.

1. Layers

The Layers panel is the starting place for all editing actions. Before you place a tile on the level, you have to select its appropriate layer. You can do so by clicking on any of the checkboxes in the left column. The layer currently selected for editing is marked with an **E** in its checkbox.

You also have the option to toggle layer visibility on/off, using the checkboxes in the right column. This is useful when you work on a layer that is normally hidden behind other layers. Visible layers are marked with a **V** in their checkboxes. The Layers panel also features a *Save* button that lets you save your editing progress.

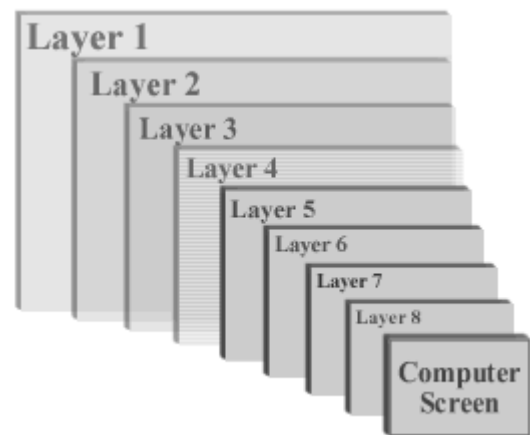


Note: Layer 4, the collision mask layer, is hidden by default. You must turn its visibility on manually before you create the solid outline of your level. Also note that the solid edges of your level have been pre-built and cannot be modified.

1.1 How do Layers work?

Layers provide a visual depth to this 2D game. Basically, you can think of layers as a z-axis addition to the normal x-y axes on the level grid. There are eight layers to choose from, numbered 1-8. The lower the number, the further that layer is from the screen, as illustrated below:

As you can see, Layers 1-3 are furthest from the player. These layers are used for tileset pieces that make up background scenery. Layer 4 is the contact layer: here you build the solid outline called the “collision mask” of the level, using a specific block object. Layers 5-6 are object layers: items from the object banks should be placed there. Layer 5 is behind the character, while layer 6 is in front of it. Layer 7 is reserved for the save spot of the level, and Layer 8 contains the collectible item. In summary:



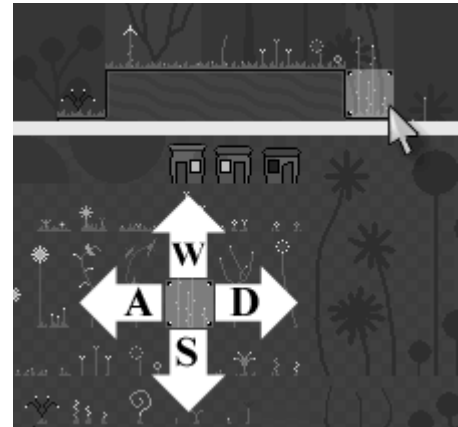
Layer No.	Description
Layers 1-3	Level background layers, tileset only.
Layer 4	Contact layer, collision block only.
Layer 5	Background object layer, objects only.
Layer 6	Foreground object layer, objects only.
Layer 7	Save Spot layer, use save object only.
Layer 8	Collectible layer, use coin object only.

2. Tileset

Tilesets are the static content of the game, the building blocks you use to construct your level. Knytt Experiment comes with a default tileset, but you are strongly encouraged to make your own. One of the factors that affect the placement of your level in the online database is whether you used a unique tileset or the default one. (Note: you must select one of the background layers (1-3) for the tileset panel to be functional. To learn more about layers, go to page 4 of this manual.)

2.1 Building complex objects

Sometimes you will see complex objects on the tileset. The easiest way to build them into your level is the following: click on the first tile you want to build with and place it on the level grid by clicking on a tile in the level editor window. From there on, use the WASD keys with your left hand to select different blocks on the chosen tileset, and place them on the level grid with your mouse (assuming that you're using the mouse with your right hand). You can also click-drag repeating blocks such as grass or water. Erase unwanted pieces by placing the blank tile over them.



IMPORTANT! One screen can contain elements from a single tileset only – no more.

3. The Object Panel

Objects are the dynamic elements of Knytt Experiment, and the Object Panel provides quick access to them. The panel is divided into two sections titled “Custom” and “Predefined”. Custom objects are animations unique to each level, while predefined objects are integral to the game and must not be edited. Predefined objects include manually operated elevators, teleports, doors, a laser and selective barriers.



Select an object simply by clicking on it, or move the selector with the WASD keys as described in the Tileset chapter. (Note: Layers 5-6 must be selected for the object panel to be active. To learn more about layers, go to page 4.)

Placing an object is just as easy: once you have the appropriate object selected, clicking on any of the tiles in the building area will place the selected object on that tile. Erase unwanted objects by placing the empty object tile over them.

Note: Two special objects are available only when certain layers are marked for editing. Select Layer 7 to get the save/starting point; select Layer 8 to get the collectible coin object. Also note that unlike other objects, you will have to right-click the coin in the building area to remove it.

4. The Building Area

This is the construction zone, the area where you build your level. It consists of a of 84x30-tile grid that is repeated in eight layers, one behind another.

Note: Only a portion of the whole area is visible at any time. Hold down E (or the space bar, or the middle mouse button) and drag the screen to bring other parts of the level into view.

The edges of your level are irreversibly sealed by an invisible but solid border that leaves four pre-defined openings in your level, one in each direction. One of the basic criteria for including levels in the online database is that each of these four openings must be unobstructed, and a way to each must be provided.

5. Information Panel

The information panel lets you define basic information about your level: its title, author and graphic designer. This information shows up during loading, and it can be also displayed in-game at any time by pressing and holding Q.

Level Title:	Template
Level By:	
Graphics By:	

J. Hotkeys and Shortcuts

There are some hotkeys and a few practical shortcuts to make your game editing experience easier. The tables below list all hotkeys you can use in the Level Editor.

Tileset & Object Controls

Selector Up	W
Selector Left	A
Selector Down	S
Selector Right	D

Program Controls

Back to main menu	Esc
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Moving the level

Move the level building area by holding E (or the spacebar or the middle mouse button) and dragging the area at the same time.

Sampling a selected element

You can “sample” any object/tileset element already on the level by right-clicking it in the level building area. This will make the selector jump to that specific object/tileset element in the object/tileset panel. From there on, build with the selected element as usual. (Note: for this to work, you must have an appropriate layer marked for editing, ie. you can’t sample an object if you’re editing a background layer.)

Erasing elements

You can use a variation of the above trick to erase unwanted elements quicker. Sample a tile that is empty in the selected layer, and use the selection to “build” over the unwanted area. This will erase the element in that layer.

G. Custom Content Management

One of the innovative features of Knytt Experiment is the ability to include custom-made graphic elements, even animations. Many people are already taking advantage of this, and are making great-looking levels. If you want to have your level stand out and ensure a prominent place in the online database, you too must make changes to the default game content. This section will show you how to do that effectively.

There are three kinds of elements you can customize: gradients, tilesets and objects. We will look at each in detail, going from simplest to most complicated.

Note: Graphic design tutorials are beyond the scope of this manual. We show you only how to start out, manage and integrate your custom content within the framework of the Knytt Experiment Level Editor.

1. Creating Custom Gradients

In Knytt Experiment, a gradient is a graphic element that makes up the very background of the level. To find it for editing, navigate the following directory path:

KnyttExperiment\Projects*Yourlevelname*\Gradient.png

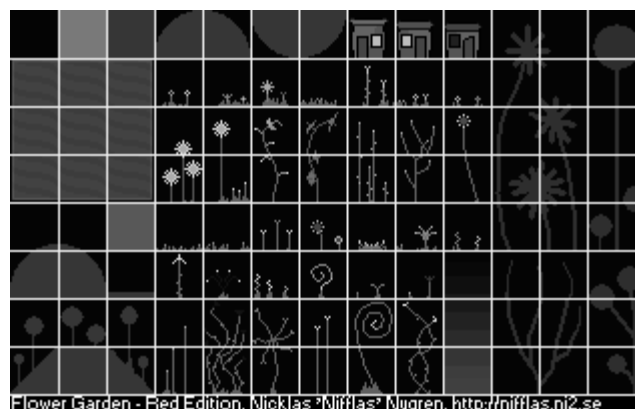
Once you located this 24x696-pixel .png file titled “Gradient”, open it in your favorite image editing program, and modify it to fit your level best. One thing to keep in mind is that this narrow vertical stripe will be repeated horizontally throughout your level (similarly to the repeat-x css command), so make sure that multiple copies of this image stitch together seamlessly on both sides.

2. Customizing Tilesets

Imagine a collection of static building elements crammed into a 384x202-pixel transparent rectangle. That’s what a tileset looks like in Knytt Experiment. To find the file for editing, navigate the following directory path:

KnyttExperiment\Projects*Yourlevelname*\Tileset.png

When you open this file in an image editing program, you will see graphic elements arranged on an invisible grid composed of 24x24 squares (equivalent to the size of a single tile in the Editor). Erase the default content from the image and start laying out your own graphic elements. It may be useful to create guides along the lines of the grid, to ensure the proper placement of elements.



Leave the square in the upper left corner blank - this is the “eraser tile”. Every other section of the grid must be filled with some content for the tileset to work properly in the Editor. Remember to include the narrow lower section for credits!

3. Importing Custom Animated Objects

You can use your own animated sprites in Knytt Experiment, with some limitations. Your animation will replace a pre-existing default sprite that will retain its original movement speed, direction, sound and animation speed. Therefore, you must study each default animation carefully and choose the one that is most suitable for the custom sprite you have in mind. Then you can start building your own.

Animation graphics are stored in the Sprites folder of your project. To find it, navigate the following directory path:

KnyttExperiment\Projects*Yourlevelname*\Sprites\

Opening the Sprites folder, you won't find any standard animation files (gif, swf), but only a series of .png graphics instead. This is because Knytt Experiment assembles animation frames from stand-alone graphic files. Keep this in mind when you export your own animation: you must export each frame as a single graphic either manually, or using a program that supports this feature.

To use your own sprites, export their .png frames into the Sprites folder. Make sure that your files and the originals have the same name – if done correctly, yours will replace the default files, and then your sprites will be ready to use in the Level Editor.



Once you open the Editor, you will find your custom sprites in the “Custom” section of the Objects panel. Just use them as you normally do (see page 5 for detailed instruction on objects).

H. Useful Tips

The above chapters covered the essential steps of using Knytt Experiment Level Editor. There are a few more things to be aware of:

- Save often! The program does not have an autosave feature, nor any confirmation screens; make sure you save your changes before you reboot or close the application.
- Make good use of layers. Get into the habit of placing certain elements consistently in a particular layer; this will make it easier to modify/remove them later on.
- Start small – gain experience with a small, simple project first, so you will be ready to tackle complex large-scope projects easier later on.
- Make sure that it's possible to reach all four exits from the save point. If your level is added to one of the databases, you'll not be able to make any changes to it. Make sure that you find everything that you need to fix before submitting!
- Your level will be placed into one of the three categories in the online database, depending on its graphic style and whether it has custom content. A *Normal* level must use unique sprites and tileset, and it must display a graphical style similar to the Knytt universe. An *Experimental* level can have a different style, but it still must feature unique content. Finally, the *Other levels* category is for levels that meet none of the above criteria.
- Although it's nice to have a level in “Normal” and “Experimental” categories, remember: level creation is all about having fun! :-)

I. Credits

Nicklas “Nifflas” Nygren -- <http://nifflas.ni2.se>

Creator of *Knytt Experiment* and the *Level Editor*.

Knytt Experiment Forum Community -- <http://nifflas.ni2.se/forum>

A growing community of gamers and designers all enthusiastic about *Knytt Experiment* and Nifflas' other games. If you have questions about the games or the Game Editor, ask here!

SiamJai -- <http://design.thaiwonders.com>

Writer and editor of this manual. Got questions, comments concerning the manual? Let me know by email: webdesign@thaiwonders.com, or drop by at forum.thaiwonders.com!