TILE MAP EDITOR JR

F256 JR

Tile Map Editor Jr (Beta)

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REQUIREMENTS

The Sprite Editor requires the following to operate:

1. Foenix F256 Jr (any model)
2. Joystick or PS/2 Mouse to operate.
3. SD card or IEC Drive if you want to save your creations.
4. F256Jr Kernel with Math co-processor support

You can find the latest FPGA image supporting the Math coprocessor here:

https://cdn.discordapp.com/attachments/1010352563406770217/111336629977 9796992/F256M_WBh_May31st_2023_RC11_ABEE.jic

You can get the required files to use the Tile Map Editor from:

<< Pending GitHub Link >>

You need these two files to execute the program (basic program and default color palette):

*   MAPEDITJR.BAS
*   DEAFULT.PAL

The complete program is written in BASIC (SuperBASIC)

DESCRIPTION

MAPEDITJR is a simple Tile Map Editor written in BASIC for the F256 Jr. series of Computers created by Stefany Allaire, check her website for more information.

https://c256foenix.com/

The Motivations to create this program were:

1. Provide an in-platform tool to Edit Tile Maps in the F256jr platform.
2. Explore & understand the layering system & Tile system of the F256Jr computer.
3. Reduce dependency from other OS tools.

The Program is either mouse or joystick driven and operates on the 320x240 graphical screen mode; this resolution allows the users to see a reasonable portion

of a 16x16 Tile Map onscreen (20x12 tiles per screen, considering the menu & tile selection area).

The editor divides the screen in various sections:

1. Tile Map Area
2. Layer Selection & Preferences
3. Tile Set Controls (Load/Next Page)
4. Tile Map Section (Options/Open/Save)

5. Status Bar
6. Tiles

The program operation will be discussed as we review each one of the sections of the screen.

MENU ICONS

These Icons will allow you to handle the main operations needed to administer your Tile Map files and Tile Sets

Menu icons description

Icon	Function	ICON DESCRIPTION
	MAP PREFERENCES	Wrench on Document
	OPEN MAP	Open Yellow Folder
	SAVE MAP	Yellow Floppy Disk
	OPEN TILESET	Open Folder w/Tiles
	IMPORT TILES	Open folder w/Space invader
	NEXT TILESET PAGE	-> Arrow pointing at tiles
	EXIT PROGRAM	Exit Sign

MAP PREFERENCES

Clicking this ICON allows you to setup the Map size as measured in tiles, the default value is 20x15 (This is equivalent to one 320x240 screen). Be aware that when you change dimensions all layers will be synchronized to this size.

OPEN MAP

Clicking this ICON will prompt you for a Map name, if this file with the extension .map exists it will load all Layers into memory for editing or viewing in the Tile Map Editor.

SAVE MAP

When you click the program asks you how many layers you want to save (currently 3 layers are supported, 2 tile layers and a property layer). After that you provide a name, all layers are saved as map files with consecutive numbers at the end for each layer.

Filesystem considerations

- An extension (.MAP) will be appended automatically to the name you provided.
- Currently no validations on existing filenames are possible, if you use a name of an already existing map, you will overwrite the existing Tile Map, please take extra care.

Note: The first 2 bytes of the first map contains the size of the map in tiles

OPEN TILESET

When you Click this Icon, you are prompted for the name of a Tile set file (extension .set), the program will try to open and load into memory this Tile set. Automatically the program will also look for a matching palette file with the same name but with a .pal extension, if it is found it will be loaded as the Tile set palette.

Currently only one Tile set is supported!

IMPORT TILES

When you click this icon, you are prompted for the name of a Sprite File (extension .spr) the program will try to open and load into memory the sprites. Please consider that all sprites in the set should be in 16x16 resolution for the tiles to load correctly.

The program will search for a palette file with the same name as the sprite file and load it immediately, if no palette file is found the default palette will be used.

MOVE TO NEXT TILE PAGE

Tile sets can have a lot of tiles and the tile selection section can only show 45 tiles at once, so to view more tiles, you need to click this ICON to show the next page of tiles. If you go past the last page (page 5) it moves to the first page again.

EXIT

Click to exit the Tile Map Editor, please remember to save your work before exiting the program, if you exit and enter the program again all tiles on the map will be cleared as part of initializing the Editor.

LAYER FUNCTIONS

Icon	Function	ICON DESCRIPTION
	SPECIAL LAYER CONFIG	Wrench on Tile
	SELECT LAYER 1	Layer 1
	SELECT LAYER 2	Layer 2
	SELECT SPECIAL LAYER	Layer S
	SPECIAL LAYER PROPERTY	Selected Property Number

The Foenix JR works with Layers to form "interesting" Tile Maps, be aware that sprites can be on top or hidden by each layer, so multiple layers can be used to play with the visibility, giving images (sprites) the illusion of being above or below each layer, skillful use of the layers and sprite layering system will add "dimension" to your games, demos, or programs.

The Map editor can draw on 2 tile layers (out of 3) and has logic to create a special layer with up to 8 properties so that your program can have additional information about any part of the map and how to treat it. For example, is the tile impassable terrain? would the tile reward treasure, quests? or is it a monster generator?

ESTABLISHING PROPERTIES OF SPECIAL LAYER

Allows you to set the name of the 8 properties that can be used in the special layer, these properties will be stored in a special file with an extension .PMAP

SELECT LAYER 1

This is considered the Bottom Layer. When you click on it a small red marker is shown on top of it, so that you know which layer you are working on. All tiles painted from this moment on are associated to this layer.

SELECT LAYER 2

This is considered the top layer. When you click on it a small red marker is shown on top of it, so that you know which layer you are working on. All tiles painted from this moment on are associated to this layer and appear on top of tiles in layer 1.

SELECT SPECIAL LAYER

This is logical layer, when you click on it a small red marker is shown on top of the icon, all tiles from the tile selection area disappear and instead the name of the current selected property is shown.

In this mode, tiles with the current property, are shaded (with diagonal lines)
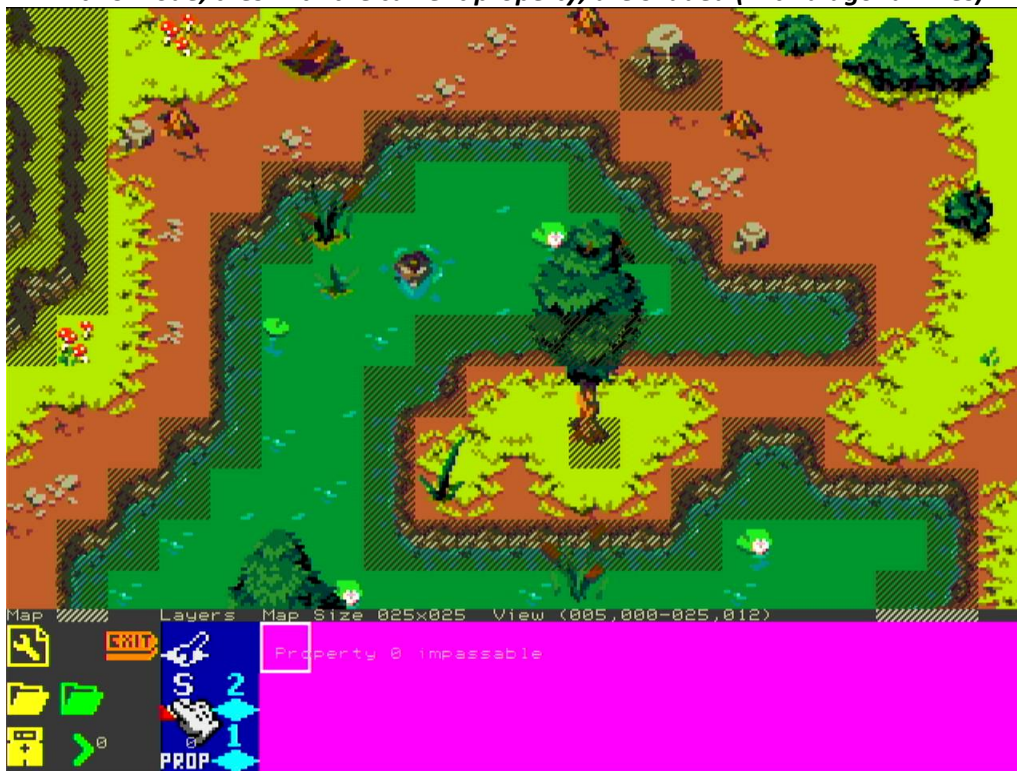
Depending on your Tileset and palette you might need to change the shading color to make it more visible.

To change the shading color press 'F1'
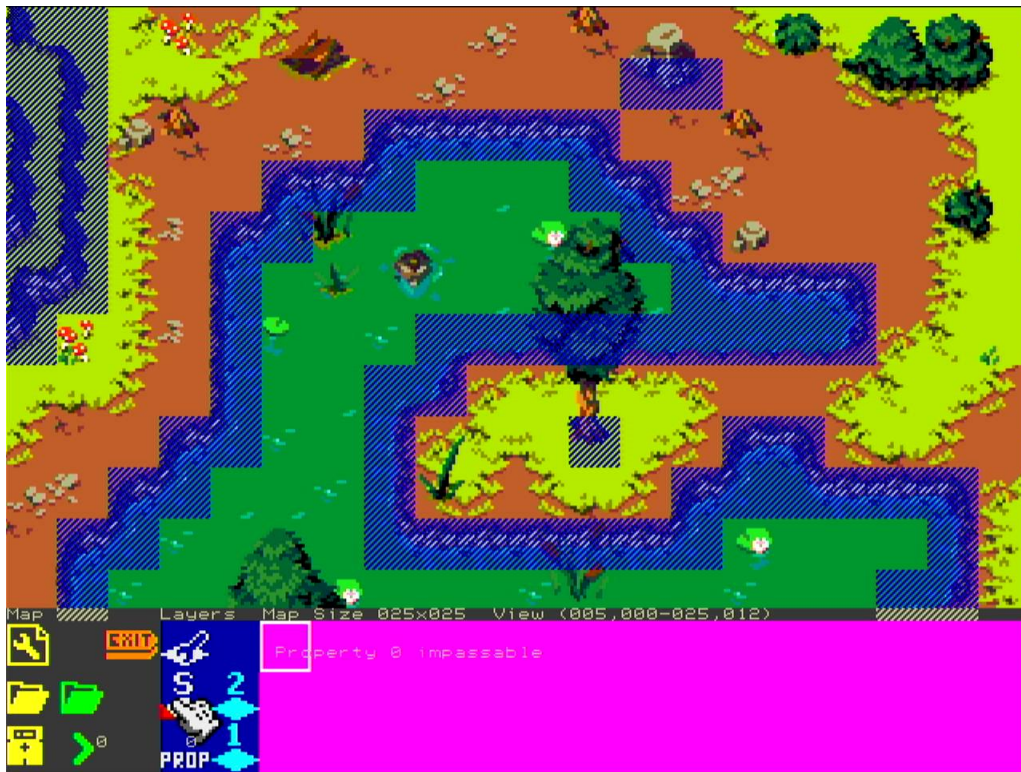
The idea of a property layer is that each tile can be assigned up to 8 different properties, this allows a program to control specific behaviors per tile, for example property 0 could imply impassable tiles, property 1 could be configured to be a respawn position, and so on...

SET PROPERTY FOR SPECIAL LAYER

Clicking this ICON switches the current property to the next one (once you try to go beyond property 7 the count will reset again to 0). If you have selected the special layer selected all tiles from the current property are shaded according to the new property selected.

TILE SELECTOR SECTION

Once you have loaded a Tile set the tile selector area will show the available tiles, a white border will be shown around the selected tile. You can select different tiles by clicking on them. The current selected tile will be used to "paint" in the Tile map area.

Note: The transparent color in the tiles is shown as bright pink

TILE MAP AREA

Once you have selected a Tile you can go to the Tile Map area and "paint" with this tile by pressing the button and dragging either with the joystick or mouse over the area.
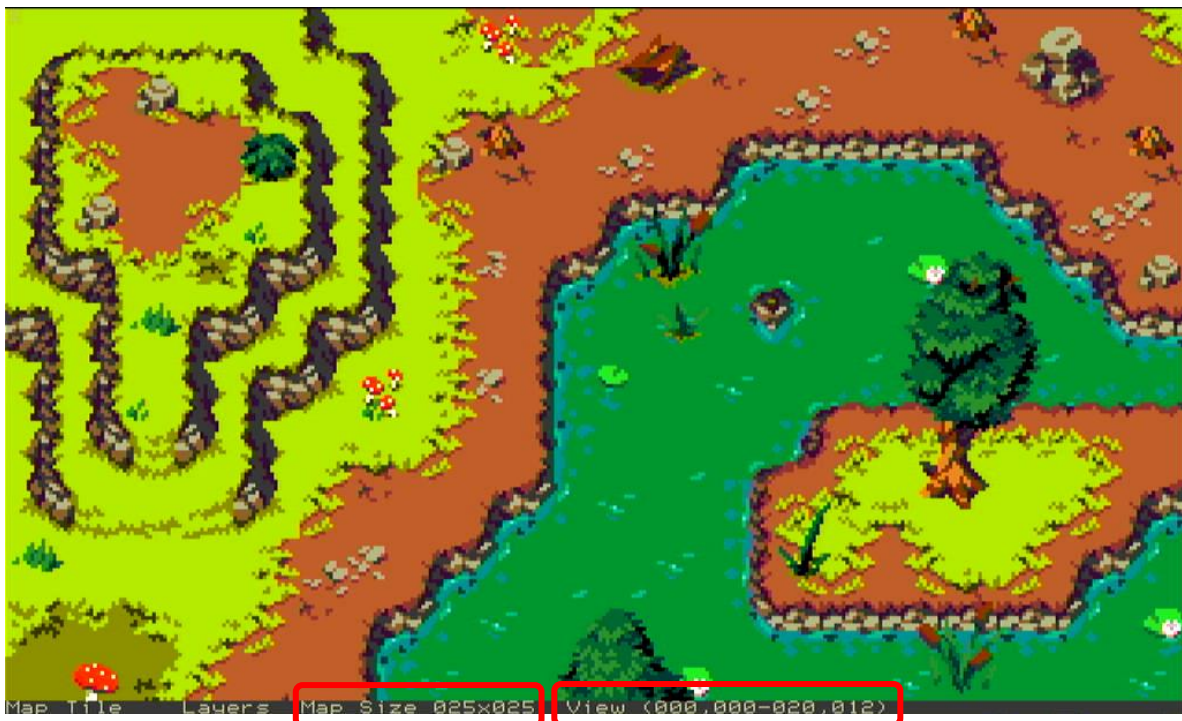
The Tile Map might be bigger than the image shown on the Tile Map editing area, to understand where you are exactly there is information on the status bar:

1. Map Size   : this shows the map dimension in tiles (width x height)

2. View : Shows the tile in the upper left corner – lower left corner

Example (000,000-020,012)
This means that you are looking at a window that goes from the 0,0 to 20,12 tile positions in the map.

NAVIGATING THE MAP

If you want to move the viewport around to a different section of the map you can use the cursor keys to scroll the window to a new position

If instead you want to move faster through the tile map you can use the WASD keys to move up, down, left, or right but at one full screen at a time.

.MAP FILE STRUCTURE

On the first map file the first two bytes specify the map dimensions

Section	Description
First byte	Map width
Second Byte	Map height

All other bytes in the map file contain the map data (2 bytes per tile)

LOADING A TILEMAP FROM BASIC

A couple of example programs are provided:

Program	Description
MAPXPLORE.BAS	This program allows you to load a tile set, palette, and tile map in memory, but this time it would show multiple layers by using pokes directly to VICKY's registers to manipulate the tile map, this method is more complex but allows greater control over the tile map

Currently there is no example for using BASIC Tile commands since BASIC is designed to use 8x8 tiles and this tile Map Editor uses 16x16 tiles.

LIMITATIONS, KNOWN ISSUES

- The Tile Map editor is limited by the F256jr memory, the internal memory organization of the program is as follows.

Memory Address	Description
$10000-$22BFF	Bitmap for Menu overlay
$30000- $3FFFF	Sprites used for cursor, pointer, and Tiles in Tile selection area
$40000- $4FFFF	Tile Map memory (up to 255 tiles)
$50000- $5FFFF	Tile Map Layer 1 memory (enough for 256x128 tiles or equivalent)
$60000- $6FFFF	Tile Map Layer 2 memory (enough for 256x128 tiles or equivalent)
$70000- $7FFFF	Special Map memory (enough for 256x128 tiles or equivalent)

- Due to memory restrictions, some compromises have been taken, such as allowing only one Tile set and two layers of tiles.
- While using the available memory more Tile sets and less layers could be used, we believe that this design offers the most flexibility and bigger Tile maps combination.

Other Tips

When Creating a Tile Map your best shot is to create a Map of the intended size, but if for some reason you require to re-dimension your map later, consider the following guidelines:

1. *Changing the width of an existing map alters the fundamental map geometry and all existing tiles in the old map will be scattered in the resized map!*
2. Changing the Height of an existing map is safe, additional rows are added and you can edit the new tiles without disturbing the existing tiles.
3. You can start with a one-layer map and then decide to add a second layer or a special property layer without disturbing the previous layers.

OTHER UTILITY PROGRAMS

A few utilities are included along with the Tile Map Editor, that allow creating tiles from imported graphical data.

Program	Description
IMPORTBMP.BAS	This program takes a 256 indexed color Windows BMP file and saves the file for the F256jr into a .fbmp file that can be loaded using BLOAD "Name.fbmp",$10000. The program also saves the imported color palette of the file into a .PAL file. *Index color 0 of the original indexed bitmap is considered transparent**
BMP2TILE.BAS	This program takes a 256 indexed color Windows BMP file, imports it, and creates tiles by dividing the image into 16x16 pieces. Please consider that the original bitmap file must fit in the 320x240 screen of the Foenix for this program to work.
SPR2TILE.BAS	Creates a new Tile file from a sprite file (requires 16x16 sprites).

Note these programs are a quick Hack, they are provided as is and I don't provide any guarantees if any byte is harmed during its usage, if you think these are useful but require something else feel free to contact me to discuss the possibility of adding more functionality to turn them into full-fledged tools.

*Programs in your PC or MAC like ASEPRITE can be used to ensure that color index 0 is indeed the expected transparent color of your image

FUTURE FEATURES & IDEAS

- Support for 8x8 Tiles
- Include BASIC example for loading tiles.

Idea for Another project!

Create an external Program to Package all Tile sets, Palettes, MAPS, Sprites, and other data (levels?) into a single file (for those old enough, it would be somewhat like a Doom WAD file).

CONTACT INFORMATION

Hopefully you'll enjoy using this program as much as I enjoyed creating it, if you have any comment or suggestion feel free to contact me: ***Ernesto Contreras***

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