tUME

the Universal Map Editor

User's Guide

May 3, 2010

Dan Chang
Gregg A Tavares

Printed on recycled paper (contains 50% waste paper including 10% post consumer)

What is tUME? 1
Your First Map 1

Setting up tUME 2
WARNING! 2
Configuration Questions 2

The Basics 3
Tiles 3
NULL Tiles 3
Tilesets 3
Renaming Tilesets, Replacing Tilesets 3
Organizing Tileset on Disk 3
Tileset Display Colors 4
Rooms 4
Moving about a Room 4
Room Display Options 4
Room Colors 4
Copying Rooms Colors 5
Moving Between Rooms 5
Layers 5
Floor 5
Layer|Lock, Unlock, Visible, Invisible 5
Tile-Brush 5
Selecting a Tile-Brush 6
Pasting the Tile-Brush 6
Windows 6
Status Bar 6
Panes 6

Palette Requester 7
Color Cycle Example 7
Color Sequencer Controls 8
Palette Area 8
RGB/HSV Sliders 8
Cycle Regs Area 8
Cycle Colors Area 8
Cycle Area 8
Speed 8
Color Sequencer Buttons 8
CYCLE ON/CYCLE OFF 8
⇔ (DIRECTION) 8
INSERT (keyboard equivalent: i) 8
DELETE (keyboard equivalent: d) 8
COPY (keyboard equivalent: c) 8
SWAP (keyboard equivalent: s) 9
SPREAD 9
BLEND (keyboard equivalent: b) 9
CANCEL (keyboard equivalent: [Esc]) 9
OK (keyboard equivalent: [Enter]) 9

Weirdness in the Color Palette 9
Colors Menu 9
Load... 9
Save 10
Range Menu 10
Load... 10
Save 10

Print Map Requester 11
What is printed 11
SPECIFY SIZE BY 11
Pages 11
Inches 11
Tiles Across Page 12
Tile Width In Inches 12
Shade Method 12
RGB Average 12
V*2+S 12
Color Correct 12
Resolution 12
First Page Only 12
Use Light Shades 12

Advanced tUME 13
Colorsets 13
Priorities 13
Using Larger Tiles 13
Why Use Composite Tiles? 14
Editing Composite Tiles 14
Room User Types 14
Tile User Types 14
Conversion Rooms 14
TANK Explosions 15
M.C. Kids Alt/Collide 15
Flat/Layered/Stripped/Why? 15
Layered 15
Flat 15
Stripped 15
Custom 16
Collision Maps 16
Object Layers 16
Downloading to a Development System 16

Cookbook 17
How do I make frequently used tile-brushes easily accessible? 17
How do I move a layer? 17
How do I create a blueprint for large rooms? 17
How do I load a DPaint picture as a map? 17
How do I find tiles that are "infrequently used"? 17
How do I count tiles? 17
How should I set DPaint up when editing tiles? 17

How do I copy a tUME project to another machine? 18
How do I find the location in the tileset source room for a particular tile? 18
How do I make the tiles automatically go to the right layers? 18
How do I associate a separate collision layer with my map? 18
How do I associate a collision tile with each image tile? 18
How do I specify where objects/monsters go on my map? 18
How do I define an invisible path for my player/vehicle to follow? 18

Reference 19
Project Menu 19
Load... (keyboard equivalent: [Alt]-l) 19
Append 19
Save 19
Normal (keyboard equivalent: [Alt]-s) 19
Save+TMGC 19
Save+TMGX 19
Clear 19
Show Status 19
Room Info (keyboard equivalent: [F6]) 19
User Info (keyboard equivalent: [F7]) 20
Tiles (keyboard equivalent: [F5]) 20
Coordinates (keyboard equivalent: [F9]) 21
Version 21
Copyright 21
☐TitleBar (keyboard equivalent: [F10]) 21
About tUME 21
Quit (keyboard equivalent: [Shift]-Q or [Alt]-x or q) 21
Tiles Menu 21
Load... 21
Full Tiled 21
Tiled-Blanks 22
All Tiled (keyboard equivalent: [Ctrl]-l) 22
As Brushes 22
Boxed 23
GridRoomAsTiles... 23
Save 23
Delete... 23
Set Info 24
Count (keyboard equivalent: [Alt]-c) 24
Highlight Tile (keyboard equivalent: [Alt]-h) 24
☐Show Tile Usage (keyboard equivalent: [Alt]-u) 24
Set Usage Limit 24
Export... 25
Room Menu 25
Create... 25
Load... 25
Save 25
Full 25
Stripped 25
Clear 25
Tiles 25

Complete....25
Delete...25
Set Info....25
☐Lock....25
Copy Color....26
All....26
Palette....26
Color Cycles....26
Set Palette... (keyboard equivalent: p)....26
☐Live Palette....26
☐Color Cycle (keyboard equivalent: [Tab])....26
Export...26
Print...26
Layer Menu....26
Add....26
Insert....26
Load...26
Append....26
Save....26
Delete...26
Move Up (keyboard equivalent: [Alt]-↑)....26
Move Down (keyboard equivalent: [Alt]-↓)....26
☐EditOnlyFloor (keyboard equivalent: [Alt]-f)....27
☐Invisible....27
☐Lock (keyboard equivalent: l)....27
Invis+Lock (keyboard equivalent: i)....27
Download....27
☐One Screen....27
16-Color Chars....27
256-Color Chars....27
Brush Menu....27
Undo (keyboard equivalent: u)....27
Select Block (keyboard equivalent: b)....27
Select Plane (keyboard equivalent: v)....27
Strip Brush (keyboard equivalent: [Shift]-X)....27
Search....27
Set Buffer (keyboard equivalent: [Ctrl]-s)....27
Search (keyboard equivalent: s)....28
Replace (keyboard equivalent: r)....28
❍Paint (keyboard equivalent: [F1])....29
❍Replace (keyboard equivalent: [F3])....29
☐Stratify Paste....29
Set Brush Mode....29
Normal (keyboard equivalent: [keypad .])....29
Recolor (keyboard equivalent: [keypad 0])....29
Count (keyboard equivalent: h)....29
☐Show Tile-brush....30
☐Hide Cursor (keyboard equivalent: [F8])....30
Export...30
View Menu....30
Flip Panes (keyboard equivalent: [Space] or j)....30

Prev Room (keyboard equivalent: 2) 30
Next Room (keyboard equivalent: 1) 30
Zoom 30
☐Toggle Zoom (keyboard equivalent: m) 30
Zoom Out (keyboard equivalent: <) 30
Zoom In (keyboard equivalent: >) 30
Grid 30
☐Use Grid (keyboard equivalent: g) 30
Set Grid Size... 30
Get Brush Size (keyboard equivalent: [Alt]-g) 30
Guide 31
☐Show Guide (keyboard equivalent: o) 31
Set Guide Size... 31
Get Brush Size (keyboard equivalent: [Alt]-o) 31
☐Spaced Toggle (keyboard equivalent: \) 31
☐EditColorsOnly (keyboard equivalent: [Alt]-e) 31
Disable 31
☐Priority 31
☐Flip 31
☐Colorsets 31
☐Scroll Lock 31
Pane 31
❍Allow All (keyboard equivalent: [Alt]-a) 31
❍Only Source 31
❍Only Edit 31
❍Only Same 32
Bkgnd Color 32
Next Color (keyboard equivalent: [Ctrl]-]) 32
Prev Color (keyboard equivalent: [Ctrl]-[) 32
Zero Color (keyboard equivalent: [Ctrl]-\) 32
☐ToggleSmartFlip 32
Export Screen 32

Troubleshooting 33
tUME says I'm out of memory, and I know I have plenty of memory! 33
I can't select a brush anymore! 33
I can't stamp my brush anymore! 33
Why does the word 'COLOR' appear attached to the pointer? 33
My tilesets don't load correctly anymore! 33
The Brush|Count function is not working! 33

Specifications 35
Hardware Requirements 35
Memory Requirements 35
Making tUME Run Faster 35
tUME Limitations 35

Key Assignments 36
Project Menu 36
Tile Menu 36
Room Menu 36

Layer Menu 36
Brush Menu 37
View Menu 37
Set Colorset Keys 38
Special Keys 38
File Requester Special Keys 38

Importing and Exporting Rooms 39
Importing Rooms: CUTTILES.EXE 39
Exporting Rooms 39
Exporting Rooms: MAP2PIC.EXE 40

Glossary 41

Error Messages 43

What is tUME?

tUME is an acronym for "the Universal Map Editor". While most map editors are throw-away tools built specifically for one project, tUME is designed to be versatile enough for use in a variety of different products. tUME has been used in over fifteen products on various platforms, each with unique requirements.

tUME uses tiles of any size from a single pixel up to 32768 pixels in size (256x128 pixels, 128x256, 327x100, 180x180, or any combination that's less than 32768 pixels). tUME edits rooms of any size from a single tile to 1000 x 1000 tiles, or larger. tUME edits multiple layers in a room. tUME can load thousands of tiles and tile images. tUME handles flipped tiles and various colorsets.

tUME gets the graphics for its tiles from DeluxePaint files. This allows you the most flexibility and power in the creation of graphics for tiles. By using Microsoft® Windows™ or MS-DOS® Task Swapper you may run both tUME and DPaint at the same time and switch rapidly between the two programs.

You may use tUME to define initial object (or sprite) placement for action games. You may use tUME to create collision maps. tUME can help you automate many game development tasks you may currently be doing by hand.

All of tUME's features add up to a more streamlined design process, allowing you more time to adjust game play until your products truly shine!

tUME's universality will prevent it from becoming obsolete. tUME will handle nearly every map oriented project you throw at it, thus you don't have to waste time writing a new tool for every project.

Your First Map

Let's create a simple map using tUME.

1. Create a **tileset** that contains the tile graphics for our map by loading the graphics for the tileset. From the menus, choose **Tiles|Load...|Full Tiled**. A file requester appears. Choose the file `SIMPLE.LBM` and click **OK**. Another dialog box appears, asking you to specify the tileset type, the tileset number, and the tile size. For now, accept the default values (tileset type = 0, tileset number = 0, size = 16x16) by clicking **OK**. The IFF picture is converted into a 16 x 16 pixel tileset. Note that pressing the left mouse button will select a single tile, and that by pressing and holding the left mouse button you can drag-select a rectangular group of tiles.

2. Now let's create a **room**. Choose **Room|Create...**, and a dialog box will appear. Let's accept the default **User Type** and **User Number**, but let's create a 50x25 tile room. Press `[Tab]` twice so that the number in the **Room Width** entry box is highlighted, type `50`, press `[Tab]`, then type `25` and press `[Enter]`. A new room will be created. Since no tiles have been pasted into this room yet, it will accept any size tiles. The room tile size will be set when you stamp a tile into the room.

3. Choose **View|Flip Panes** or press `[Spacebar]` to flip back to the source pane, then drag-select one or more tiles. Now press `[Spacebar]` again and place your tile(s) by moving the mouse pointer to the desired location and pressing the left mouse button to place the tiles. Hold down the left mouse button to 'draw' with the tile-brush, or hold down the right mouse button to 'erase' with the tile-brush.

4. Save your map by choosing Project|Save...|Normal. Enter `SIMPLE.TUM` and click **OK**.

You've done it. You created your first map.

Setting up tUME

WARNING!

There are some design decisions you MUST make before you can start using tUME effectively in your project!

tUME's universality is both a blessing and a curse. It can be a blessing, as you may configure it to work with your particular project requirements. It can be also be a curse, if you pick the wrong model for your project. Since it can be difficult (sometimes impossible) to convert maps from one format to another, it behooves you to choose the right format before you spend hours drawing your maps.

tUME is a power tool. Like other tools, you may hurt yourself (i.e., wasted time) if you don't use it correctly.

Configuration Questions

Here are the questions you want to ask yourself in setting up tUME, and examples of some of the right answers:

1. What sort of maps am I trying to create?

2. What size tile will I use? Please read the **Larger Tiles** section for assistance in selecting a tile size.

3. Should I use the composite tile feature?

4. How do I use the maps saved by tUME in my game? What sort of tUMEPack will I need? Should I use `MAP2PIC.EXE`, `tPBin.EXE`, `tPMCKid2.EXE`, or write my own conversion program?

The Basics

Tiles

A **tile** is the smallest unit of graphics that tUME works with. Tiles are rectangular patches of pixels. Tiles graphic may be literal, where what you see is what will appear in the level, or iconic, where it may represent a monster, an attribute, or something else entirely.

A tile may be any size; e.g., 8x8, 16x16, etc. Tile sizes are typically the same size as the target hardware's character size. Thus if the target hardware supports 8x8 pixel characters, it would be reasonable to choose a tile size of 8x8 or 16x16.

A collection of tiles is called a **tileset**. Tilesets appear in **source rooms**.

NULL Tiles

When a **room** is first created it is filled with NULL tiles. These NULL tiles represent the absence of a tile. They do not represent SKY, GROUND, nor anything else except the absence of a tile. When you are creating a room remember this because it will affect your game. If you are making a platform video game and you have NULL tiles in your rooms, when tUMEPack generates your game levels it needs to put a tile everywhere there is a NULL tile and it has no idea of which tile it should put there. Should it be tile 1 from tileset 1, or tile 1 from tileset 17, or tile 19 from tileset 4? It doesn't know so it is best to fill every NULL tile with some tile. You can check for NULL tiles by pressing `[Ctrl]-[` or `[Ctrl]-]` on the keyboard to change the NULL tile color. Anywhere you see the colors change is where there is a NULL tile. Press `[Ctrl]-\` on the keypad to set the color back to normal.

Tilesets

A **tileset** is created whenever you load a DPaint picture into tUME. Every time you load some tiles into tUME from a DPaint picture you create a new tileset. tUME does not group tiles from different pictures into one tileset.

To create a tileset, choose one of the following five methods: **Load...|Full Tiled**, **Load|Tiled-Blanks**, **Load|All Tiled**, **Load|As Brushes** and **Load|Boxed** (all which see, below). If you can't decide between which of the five loading methods to use, I recommend using **All Tiled** as it is not sensitive to the background color, and is more forgiving about adding tiles to the source picture.

To delete a tileset, choose **Tiles|Delete...**.

Renaming Tilesets, Replacing Tilesets

Occasionally (rarely), you may want to tell tUME to use a different ILBM file for a tileset. There are two ways to change a tileset name:

1. A. Create the replacement tileset. B. Delete or move to some other directory (hide) the old tileset. C. Load your map. When tUME can't find the old tileset, it will ask "Can't load tiles! Would you like to try a different file?" D. Click **Yes**, and use the file requester to specify the replacement tileset name. E. Save your map.

2. A. Create the replacement tileset. B. Keep the old tileset around. C. Load your map. D. Select a tile from the old tileset. E. Select **Tiles|Set Info...** and change the filename to the replacement tileset. F. Save your map.

Organizing Tileset on Disk

When you load a tileset in tUME, all that is really added to your map is the name and path of the picture you specified. That means that if you tell tUME to load the picture `c:\game\art\tree.lbm`, the next to you load your map tUME is going to look for `tree.lbm` in the sub-directory `c:\game\art`, and if it can't find it there it will complain. It will ask you to tell it where it can find `tree.lbm`, and once you've told it, it will ask you if you want it to look for other tileset in the directory you just specified to find `tree.lbm`. The implication is this: if you plan to share maps and tilesets with others, it would be easiest to create the same directory structure on both machines for storing your maps and tilesets. Alternatively, if you plan to store your maps and tilesets in the same

sub-directory, you can set tUME to search the current sub-directory for tilesets; see **Configuring Tileset Search Path** section of the *tUME Configuration Guide*.

Tileset Display Colors

A tileset is normally displayed using the palette found in its DPaint picture. However, there is an option to display the source tiles using the current edit room's palette. Check **View|☐EditColorsOnly** or press `[Alt]-E`, and the source room will be displayed using the last edit room's palette. This feature is useful when you have a tileset that is designed to use different palettes to change its appearance.

E.g., lets say you have a marble tileset that's designed to appear as green marble in the OFFICE edit room, and as grey marble in the HALL edit room. Switch to the OFFICE edit room, and choose **View|☐**. Now when you switch to the marble tileset, the tiles will appear green. Switch to the HALL edit room, and then when you switch to the marble tileset, the tiles will appear grey. Uncheck **View|☐EditColorsOnly** again, and the marble tileset will be displayed using its DPaint palette.

Note that if you select this option while in a source room, it will not take effect until you switch to an edit room.

Rooms

A **room** is made of one or more **layers** (described below) stacked on top of each other. tUME has two basic types of rooms, a **source room** and an **edit room**. A source room contains one or more tilesets, as described above. A **composite room**, described below, is also considered a source room.

An edit room is a room that you create. An edit room may be a **level** (as in a game level) **room** and represent a single level in a video game, or it may be a **conversion room** (which see), and represent tile attributes definitions.

To create a room, choose **Room|Create...** To delete a room, choose **Room|Delete...** To lock a room, choose **Room|Lock**. To clear a room, choose either **Room|Clear...|Tiles** or **Room|Clear...|Complete**. To re-size a room, choose **Room|Set Info...** and then enter the new **Room Width** and the new **Room Height**.

tUME allows as many rooms as will fit in memory. Thus, you may wish to create **parts rooms**; see **Cookbook: How do I make frequently used tile-brushes easily accessible?**

Moving about a Room

If your room is larger than can be displayed on the screen you can press the cursor keys to scroll around. Pressing `[Ctrl]` and the cursor keys will scroll around the room quicker. Pressing `n` will scroll the tile under the cursor as close to the center of the screen as possible. Pressing `[Ctrl]-[Home]` shows the upper-left corner of the room, and pressing `[Ctrl]-[End]` shows the lower-right corner of the room.

tUME will scroll automatically if the mouse pointer touches the edge of the window while you are drawing tiles or picking up a tile-brush. This allows you to draw over large areas and also permits you to pick up tile-brushes larger than the display window.

Room Display Options

tUME allows you zoom in, to examine each tile in more detail, or to zoom out, to see more of your map at once.

Choose **View|Zoom|Zoom Out** or press < (`[Shift]-,`) to zoom out, or choose **View|Zoom|Zoom In** or press > (`[Shift]-.`) to zoom in. Pressing < will cause the display to zoom out more with each press. To zoom out to the limit, press `[Alt]-<`, and to zoom in to the limit, press `[Alt]->`. To return the display back to normal, Choose **View|Zoom|☐Toggle Zoom** or press `m`. Pressing `m` repeatedly will toggle the display between the normal view and the last zoom setting.

The maximum zoom out, maximum zoom in, and all zoom settings are all configurable through the tUME.INI file.

You may disable the display of priorities by checking **View|Disable|☐Priority**. You may disable the display of tile flipping by checking **View|Disable|☐Flip**. You may disable the display of tile colorsets by checking **View|Disable|☐Colorsets**.

Room Colors

Each room has its own color palette. It gets this palette from the very first tile you stamp into a new room.

This means that if you create a bunch of blue-shaded tiles, and then you create a room using those tiles, you will have blue tiles in your source room and your edit room.

Now if you save your map, and then use DPaint's palette editor to change the blue shades to shades of green, when you reload your map, tUME will re-scan in your tiles from your new DPaint picture, and the tiles will be display in the source room using green shades. However, when you look at your previously created edit room it will still display using the original blue shades. One way to solve this problem is to copy a new palette to that edit room.

Copying Rooms Colors

To copy the colors of one room to another, go to the room you want to copy the colors from. Pick up a tile-brush. Change to the room you want to copy the colors to and choose **Room|Copy Color|All**. (see **Room Colors** above).

There are three **Copy Color** options, **All**, **Palette**, **Color Cycles** (all which see, below).

To copy only part of the palette from one room to another, see the instructions under **Colors**, **Color Sequencer Buttons**, **COPY**.

Moving Between Rooms

To move forward to the next edit room press `1`; to move backward to the previous edit room, press `2`.

To flip to the source pane, press `[Spacebar]`. To move forward to the next source room, press `1`; to move backward to the previous source room, press `2`.

Layers

A **layer** is a rectangular grid of tiles. Layers don't exist on their own, they are always part of a room. Currently, all the layers in a room use the same size tiles. The first layer in a room is layer one. Layer two is then drawn on top of layer one, and layer three on top of layer two, etc.

Floor

The current edit layer is called the **floor**. The floor affects what you get when you pick-up a **tile-brush** (below) and when you stamp a tile-brush. To move the floor up one layer, press `[Alt]`-↑. To move the floor down one layer, press `[Alt]`-↓. To move the floor to the topmost layer press `[Alt]`-`[Shift]`-↑. To move the floor to the bottommost layer press `[Alt]`-`[Shift]`-↓. Each room has its own floor layer.

If you want to see and edit only the floor layer, choose **Layer|☐EditOnlyFloor**.

If you choose **Project|Show Status|Room Info** or **Project|Show Status|Coordinates**, then the rightmost number is the current floor layer, and the number immediately left is the total number of layers in the room.

To add a layer to the current room choose **Layer|Add**. To insert a new layer at the floor layer (see **The Floor**, below) of the current room, choose **Layer|Insert**. To delete a layer from the current room, move the floor to the layer to be deleted and choose **Layer|Delete...** To save a layer from the current room, move the floor to the layer to be saved and choose **Layer|Save...** To load a saved layer and insert it as the current floor layer (see **The Floor**, below) of the current room, choose **Layer|Load...** To load a saved layer and append it as the topmost layer of the current room, choose **Layer|Append...**

Layer|Lock, Unlock, Visible, Invisible

You may lock a layer or make it invisible. The most useful combination is probably locked and invisible obtained by choosing **Layer|Invis+Lock**. This option makes the current floor layer locked (uneditable) and invisible (you can't see it).

E.g., if you wanted to edit layers 01 and 02 of your room and didn't want to affect layer 03 you would move the floor to layer 03 and press `i` making it locked and invisible. Now move the floor to layer 01 and edit away. You may set

each layer's locked/unlocked and visible/invisible status separately. The floor's current locked/unlocked, visible/invisible status is indicated in the status bar by the last two characters: **v** = visible, **i** = invisible, **u** = unlocked, **l** = locked.

Tile-Brush

Editing a room in tUME is accomplished via the tile-brush feature. By using the tile-brush tool, you can pick-up a rectangular region of tiles, and carry the tile-brush around. Then you can make a copy of it (stamp it) somewhere else in the edit room, or even in a different edit room.

You can read more about tile-brushes in the **Editing Layers** and **Stratify Paste** sections, below.

Selecting a Tile-Brush

Press `b` to activate the tile-brush selection tool. The cursor will change to a cross-hair to indicate that you are in the tile-brush select mode. Drag-select the tiles you want to pick up in your tile-brush.

When you select a tile-brush, you get the floor layer and every layer above it. Thus, if you have three layers, and the floor is set to layer 02, then you would be grabbing two layers of tiles, layers 02 and 03.

If you've picked up a multi-layer tile-brush using the `b` key, pressing `<SHIFT>-X` (or choosing **Brush|Strip Brush**) will strip it of all but the bottom layer.

Alternatively, you may press `v` (or choosing **Brush|Select Plane**) to activate the single layer tile-brush selection tool. This tool will pickup only a single layer of tiles from the floor.

You may flip the tiles in the tile-brush about the x-axis by pressing `x`; you may flip the tiles in the tile-brush about the y-axis by pressing `y`.

See also **Stratify Paste** section, below.

Pasting the Tile-Brush

After drag-selecting a tile-brush, the cursor should change back to a pointer, which indicates that you may stamp the tile-brush. If it remains a cross-hair, it means you cannot stamp the tile-brush in the current room.

Press the left mouse button to stamp a copy of the tile-brush at the current location in the room. Press the right mouse button to erase (set tiles to NULL tiles).

When you change the floor you change the destination of your tile-brush. E.g., if you set the floor to layer 02 and picked up a two layer tile-brush with tiles in from layers 02 and 03 and then you moved the floor to layer 01, the tiles you picked up in layer 02 will be drawn in layer 01 and the tiles you picked up in layer 03 will be drawn in layer 02. Layer 03 will not be affected because your tile-brush is only 2 layers deep.

You may UNDO the last tiles you stamped by choosing **Brush|Undo** or by pressing `u`.

There are two tile-brush pasting modes; choose either **Brush|❍Paint** or **Brush|❍Replace** (which see).

You may hide the tile-brush by un-checking **Brush|☐Show Tile-Brush**, which see.

Windows

Currently, tUME only displays one **window**, which occupies the screen area below the **status bar**. Each window has two **panes**.

Status Bar

At the top of the screen is the status bar. The status bar may be revealed or hidden by choosing **Project|☐TitleBar** or pressing `[F10]`. Change the status bard display by choosing **Project|Show Status|Room Info**, **Project|Show Status|User Info**, **Project|Show Status|Tiles**, or **Project|Show Status|Coordinates**.

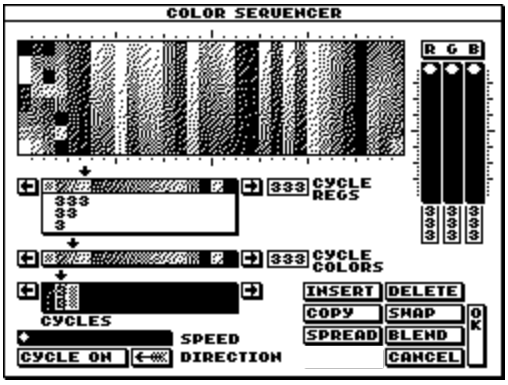
tUME uses color registers 254 and 255 to draw its menus and color registers 252 and 253 for some windows. If you set those colors all to white or all to some other color, you will not be able to read the status bar. tUME will automatically change the colors of the status bar when you move the mouse pointer over it, but that is not usually very useful. You may tell tUME to force the last four colors to something visible by pressing `[Alt]-P`. Pressing `[Alt]-P` again will return your original colors.

Panes

Only one pane is visible at a time. To view the other pane, choose **View|Flip Panes** or press `[Spacebar]` or the `j` key. By default, all source rooms are in a list that appears in the source pane, and all edit rooms are in a separate list that appears in the edit pane. You may modify what the panes display by checking **View|Pane|❍Only Source** or **View|Pane|❍Only Edit** or **View|Pane|❍Allow All**.

Palette Requester

You can modify the color palette of any room in tUME by going to that room and pressing `p` or choosing **Room|Set Palette** to bring up the palette requester (also called the color sequencer):



At the top of the Color Sequencer you will see all 256 color displayed. You may choose one by selecting it or more than one color by drag-selecting them. You can modify your selected colors by dragging the small diamonds underneath the **R G B** button. Clicking on the **R G B** button with change to HSV mode so that you can modify the colors using the Hue, Saturation, Value method.

Color Cycle Example

tUME supports a very sophisticated color cycling system. Lets say you wanted one color in your palette to glow in a reddish color. (The Arcade game *Xevious* did this to make the explosion craters glow.) Click on the grey checkered box inside the area above the word **CYCLES**. Now click on **INSERT**. You will notice **00** appearing in a white box. Click on it to select it. An arrow will appear above it indicating you are editing cycle **00**.

Now click on the grey checkered box in the **CYCLE REGS** area. Click on **INSERT** and you will see a black box appear and the grey checkered box will move to the right. Notice that the number **0** is printed below the black box. This number **0** represents color REGISTER number **0**.

Now click on the grey checkered box in the **CYCLE COLORS** area and then click on **INSERT** 16 times. Note the number just left of **CYCLE COLORS** should now say 16 and the grey checkered box has scrolled off the display.

Next click on the far left inside the **CYCLE COLORS** area. An arrow should appear above the area you just clicked. Now move the **R** slider up in the **R G B** area to the top. The area just below the arrow should now be red. Click on this new red area and DRAG select to the right until the entire 16 **CYCLE COLORS** are selected. Click on **SPREAD**. You should now have a spread of colors from red to black.

Finally click on the **SPEED** slider. Hold down the mouse button drag the speed slider around. Do you see what is happening? The 16 shades of red you just created are being 'pumped' through color REGISTER 0 (zero).

Click on color register 0 in the **COLOR REGS** area and then move one of the RGB sliders. Go back and drag this **SPEED** slider around. Now the shades of red are being 'pumped' through a different color register.

Click on the color register in the **COLOR REGS** area and the click on **INSERT** 7 more times. All the new color registers you add will start as color register 0. Drag select any 8 colors from the **PALETTE** area. Click on **COPY** and the click on the first color register in the **COLOR REGS** area. Again, drag the **SPEED** slider and note how the shades of red are now being 'pumped' through the 8 registers you copied.

You can have as many cycle colors as you want 'pumped' through as many color registers as you want. You can also **INSERT** more cycles and 'pump' a different set of cycle colors through a different set of color registers.

Color Sequencer Controls

Palette Area
This area shows all 256 colors. You can select one or more by drag selecting the colors you want. The colors are numbered down then across meaning color #0 is in the top left corner. Just below color #0 is color #1, then color #2 ... To the right of color #0 is color #8.

RGB/HSV Sliders
Here you can click on the **R G B** button to switch to HSV mode (Hue, Saturation, Value) and you can drag the sliders to effect the currently selected color or colors. The arrows above and below the sliders allow you to affect the selected colors with a little more detail.

Cycle Regs Area
This area shows the color registers of the currently selected Cycle. The numbers in the bottom of this area represent the color registers you've defined for the current cycle. The colors above the numbers are just the color those registers are currently set to above in the palette.

When this area is active (because you click on one of the color regs.) an arrow will appear above the color register you clicked on. You may drag select more than one color. Using the **R G B** sliders you can change the currently selected color registers. If you have more than 16 color registers defined you can scroll through them using the left and right arrow buttons. The number at the right of this area is the total number of color registers you have defined for this Cycle.

Cycle Colors Area
This area works almost exactly the same as the **CYCLE REGS** area except you are manipulating cycle colors instead of color registers.

Cycle Area
This area shows the Cycles you have created. You can click on any one of them and the **CYCLE COLORS** and **CYCLE REGS** areas will show you the cycle colors and color registers for the selected Cycle. When this area is inactive you will see a small pointer indicating which Cycle is currently being edited.

Speed
This sets the speed of the current Cycle. All the way to the left is OFF and extreme right is 60 times a second.

Color Sequencer Buttons

CYCLE ON/CYCLE OFF
This flag sets whether or not the selected cycles are on or off.

⇔ (DIRECTION)
This sets the direction the cycle colors are moved through as they get 'pumped' into the color registers. NOTE: The cycle colors are always put into the color registers in the same order. This button just sets the direction of the Cycle. Example: The cycle colors are red, yellow, green, cyan, blue, purple. The first time the colors are placed in the color registers the will be placed in the preceding order. The next time the order will be yellow, green, cyan, blue, purple, red. If you change the direction, the order would be purple, red, yellow, green, cyan, blue.

INSERT (keyboard equivalent: `i`)
This button inserts a color register, cycle color or Cycle depending on which area is active. The active area has an arrow above it pointing down.

DELETE (keyboard equivalent: `d`)
This button deletes the currently selected color registers, cycle colors or Cycles.

COPY (keyboard equivalent: `c`)

This button copies colors or color registers. Here are the steps involved in copying color(s):

1. Drag-select the colors you want to copy.
2. Select **COPY**. The palette requester's title bar should read **COPY TO->**.
3. Move the mouse pointer to where you want to paste the colors, and press the left mouse button.

To cancel the copy operation after step two, press `[Spacebar]`.

You can copy from the palette area to the palette, the color regs to the color regs, the color cycles to the color cycles. You can also copy from the palette to the cycles color or from the cycle colors to the palette.

You may also copy colors from one room's palette to another room's palette. Follow the instructions above, but insert these following steps between steps 2 and 3:

2.a. Select **OK** to leave the current room's palette.

2.b. Make the destination room visible (press `[Spacebar]`, `1` or `2` until it becomes visible), then press `p` or choose **Room|Set Palette** to edit the destination room's palette. Note that the palette requester's title bar reads **COPY TO->**; this indicates your are in the middle of a copy operation.

Copying to and from the color registers is another matter. If you copy from the palette to the cycle registers then the cycle registers will be set to the register numbers of the copied colors. It makes no sense to copy from the cycle colors to the cycle registers since the cycle colors do not represent any color registers. Copying from the cycle registers to the palette or the cycle colors copies the associated colors in the palette. Example: the cycle register says 23. This would mean color 23 in the palette would get copied to the destination of the copy.

SWAP (keyboard equivalent: `s`)

Swap works exactly the same as copy except the colors are swapped between the source and destination. The same rules apply as when copying to and from the cycle registers.

SPREAD

Spread spreads the colors from the first selected color to the last selected color. Spreading in RGB mode spreads using the red, green, and blue values. Spreading in HSV mode uses the hue, saturation and value values. This means you'll get different results depending on which mode you're in.

You can also spread the color registers which will spread the register numbers between the first and last selected registers.

BLEND (keyboard equivalent: `b`)

Blend is like copy except the destination colors are blended with source colors. You cannot blend color registers.

CANCEL (keyboard equivalent: `[Esc]`)

This exits the Color Palette Editor, discards all the changes you've made.

OK (keyboard equivalent: `[Enter]`)

This exits the Color Palette Editor, keeping all the changes you've made.

Weirdness in the Color Palette

When you insert cycle colors you will notice colors disappear from the palette. This is because the cycle colors are independent of the palette meaning that to display both the palette colors and the cycle colors we would need to show 256 + 16 colors or 272 colors. The IBM in MCGA mode can't show 272 colors at once so instead we use colors 232 through 247 to show the cycle colors. The palette colors are shown when the palette area it active and the cycle colors are shown when the **CYCLE REGS**, **CYCLE COLORS** or **CYCLES** areas are active.

Colors Menu

When the palette requester is active the menus change to allow you to save and load palettes.

Load...

Choose this option to load a palette stored in an IFF file into the currently active palette. You may not attach a key to this event. This event only works when the palette requester is active.

Save...

Choose this option to save the currently active palette to an IFF file. You may not attach a key to this event. This event only works when the palette requester is active.

Range Menu

When the palette requester is active the menus change to allow you to save and load palette ranges.

Load...

Choose this option to load a saved color cycling range stored in an IFF file into the currently selected palette range. You may not attach a key to this event. This event only works when the palette requester is active.

After selecting the file to load, a dialog will be presented, requesting you to specify the first color to copy. This defaults to the first color of the first color cycle range in the palette. Press `[Enter]` to accept this default value, or enter a new first paletter number. The number of colors loaded will be the number of colors selected in the palette.

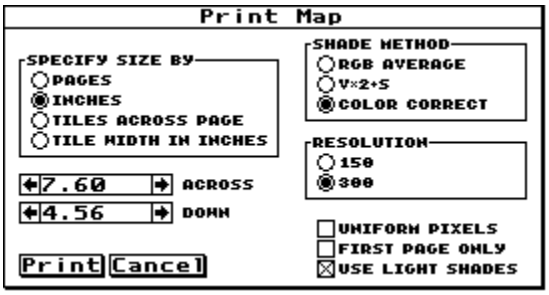
Save...

Choose this option to save the currently selected palette range to an IFF file as a color cycling range. You may not attach a key to this event. This event only works when the palette requester is active.

The first color and number of colors saved in the color cycle range is based on the currently selected palette range.

Print Map Requester

tUME can print your rooms and it can print them in various sizes from one page to very large multi-page poster size printouts. Choose **Room|Print...**, and you'll see this dialog box:



To print, first decide how you large you would like your printout to be. You only specify one size parameter, either across or down, and tUME computes the other. Choose how you would like to specify the print size.

For example, choose **INCHES** and then click on the **ACROSS** number, type **10** and press `[Enter]` (not `[Tab]`!). You will notice that tUME fills in the **DOWN** number. What is happening is that tUME attempts to setup printing so that your room will scaled to 10 inches across when you print and then it computes the height the printout will need to be. For example if you room is twice as high as it is wide then if you specify 10 inches across your room is going to print 20 inches high. If you specify 10 inches down then your room is going to print 5 inches across.

tUME currently only prints in PCL 3 which means it will print on an HP Deskjet, Laserjet or compatible printer. You may tell tUME to print on a different printer or to a file by changing the tUME.INI file. See the **Configuring Printing** section of the *tUME Configuration Guide*.

While tUME is printing you may press `[Esc]` to abort the printout. NOTE: tUME will recover 'gracefully' by ejecting the page currently being printed and resetting your printer to standard defaults.

What is printed

tUME prints the current room in whatever state it is currently in. This means that if you have guides on they will be printed. If you have your tiles 'spaced' then spaces will be printed. If you have certain layers invisible they will not be printed.

Also, tUME prints in the current colors of the room so if you want a good printout you should probably set the background color in the palette to WHITE because most printers don't print lots of black very well.

If you print with spaced tiles, or if you have many NULL tiles, you may want to change the background color before you print. Press `[Ctrl]-]` to increment or `[Ctrl]-[` to decrement the background color.

You may want to turn off certain layers like special layers or icon layers before you print so your special tiles won't obstruct your printout. Move the floor to that layer and press `i`.

SPECIFY SIZE BY

These settings allow you to specify the size you want to print your room in one of four ways.

Pages

Specifying size by pages does just that. You tell tUME how many pages across or down you want your room printed.

Inches

Specifying size by inches allows you to print your room smaller than 1 page. You can specify in 100ths of an inch so you could type **5.45** inches if you want to. Note: tUME assumes a page in 10 inches across and 7.5 inches down. This leaves at least a half inch border around the each page (in which most laser printers cannot print.)

Tiles Across Page
Specifying this way you tell tUME how many tiles you want to fit per page either across or down.

Tile Width In Inches
This last way you tell tUME how large a particular tile is. If you tell tUME to print each tile at 1 inch across and your room is 500 tiles wide then tUME is going to print your room 500 inches across or at least 50 pages!

Shade Method

Choosing a different shading method instructs tUME how to determine which shade of gray a particular color should be printed in. tUME tries to simulate 64 shades of gray.

RGB Average
The red, green and blue values for a particular color are averaged

V*2+S
The 'Value' of a color is multiplied by 2 and then the color's Saturation is subtracted.

Color Correct
The red, green and blue values are each multiplied by special constants where green has the highest constant and blue has the lowest and then the results are added together. This produces shades the correspond closer to what you see on the display since green is the brightest color and blue is the darkest. This is therefore the default shade method.

Resolution

Choose 150 dots per inch or 300. 300 will look better but if your printer doesn't have enough memory for an entire 300 dot per inch page then you'll have to choose 150 dots per inch.

First Page Only

This is mostly for testing. If you are about to print a very large printout you can check this option so that only the first page is printed. This way you can check the first page to see if it is printing that way you want it to before you decide to print the entire room.

Use Light Shades

This option 'ramps' the gray scale calculations so that more light shades are used to print your map. This results in much better looking printouts and is therefore checked by default.

Advanced tUME

Colorsets

tUME allows up to 128 colorsets. What does that mean and why do you need 128 of them? Well you probably only need 8 for today's hardware platforms. The Super Nintendo Entertainment System or SNES only allows 8 colorsets of 16 colors each. The SEGA Genesis allows only 4 colorsets of 16 color each.

Colorsets are a way of displaying and using your tiles in more than one set of colors. The default setup is for the SNES and Genesis but it may be re-configured for your particular needs (see the **Redefining Colorsets** section in the *tUME Configuration Guide*).

To use the default 8 colorsets you need to draw your tiles in a particular way. Each tile needs to use one set of 16 colors in DPaint. Either the first set of 16 colors (0 - 15) or the second set of 16 colors (16 - 31) or the third set of 16 colors (32 - 47) and on to the eighth set of 16 colors (112 - 128).

When you make your rooms in tUME using these tiles they will be drawn in the color you used in DPaint. If you want to change them to one of the other colorsets, first pick up a tile-brush, then press `1`, `2`, `3` through `8` on the numeric keypad to choose colorsets `1` through `8` (or `0` through `7` for you programmer types). The word **COLOR** will appear attached to the cursor, and now when you stamp a brush with the left mouse button, instead of actually placing tiles in your room, you will be changing the colorsets of ("coloring") the tiles you stamp over. To change the tiles back to their original colors, stamp with the right mouse button.

Press `.` (period) on the keypad to exit the colorset coloring mode and return to the regular tUME drawing mode (where you place tiles instead of just changing their colors).

Priorities

Priorities are something that is really only used on the SNES/Genesis systems, though you may find other uses for it. On those systems individual tiles may be marked as having a higher priority so that the system's sprites will appear to go behind those tiles. Editing or setting the priorities of tiles works exactly like the colorsets.

Grab a tile-brush and then press + on the numeric keypad. The word **COLOR** will appear attached to the cursor, and now when you stamp with the left mouse button, you will set the priority bit of all the tiles you stamp on to 1. If you stamp with the right mouse button, you will reset the priority bit of the tiles you stamp on back to 0.

Tiles that have there priority set to 1 will be draw in colors 128 through 255. For example if your tile uses colors 16..31 and you set its priority to 1 then it will now be drawn in colors 144..159 (16+128..31+128). It is up to you to set these colors to something you will recognize. You may want to set them to that same colors as the originals except with a lighter or darker shade, or you may want to set them all to shades of red or shades of grey. Choose anything that will make it clear which tiles have their priority set to 1.

Press `.` (period) on the keypad to exit priority setting mode and return to the regular tUME drawing mode (where you place tiles instead of just changing their priorities).

Using Larger Tiles

Sometimes, you might want to use tiles that are larger than the hardware character size. Examples abound from existing products: *Super Mario Bros 2* and *3* on the NES uses 16x16 pixel tiles. *Robin Hood* for the NES uses tile that are almost a full screen in size.

Why would you want to do this? Because it allows you to create very large levels with very little memory. Think of it this way. If you are writing an NES game like Mario and the average level is 10 screens by 2 screens in total, one way you could implement the game is to store 20 screen dumps using one BYTE to represent each NES 8x8 character on the screen. Since one NES screen has 32 characters across and 30 character down that would require 32*30 bytes (960 bytes) per screen. Multiply that times 20 screens and you get 19200 bytes per level.

Since your typical NES cartridge is only 256K, you would only be able to store about 12 levels. Not very many! If instead you used a larger tile size, say 16x16 pixels, each 20 screen level would now only require 4800 bytes. You could go even farther if you wanted to. I believe *Sonic* uses 32x32 pixel tiles, which means *Sonic* can store 80 screen levels in only about 5K bytes.

If you want to use 16x16 pixel tiles, the simplest way is to use DPaint to draw 16x16 tiles. However, if you prefer to draw 8x8 tiles, and use tUME to create 16x16 tiles from the 8x8 tiles, then you'll want to create composite tiles.

Why Use Composite Tiles?

Composite tiles offer a way to create tiles that are made of a rectangular grid of smaller tiles. Thus you could make 16x16 pixel composite tiles from four 8x8 pixel tiles, or make 32x32 pixel composite tiles out of four 16x16 pixel tiles, or make 64x64 pixel tiles out of 64 8x8 pixel tiles.

This is a preference issue. For example, if you wanted to use 64x64 pixel tiles, you may simply create 64x64 pixel tiles in DPaint, create your map using the 64x64 tiles, and rely on tUMEPack on the back end to break the larger tiles down to smaller tiles (and find the duplicate tiles). tPMCKid2 does this: it is designed to work with 16x16 tiles, and will break each tile down to four 8x8 component tiles. This is the recommended technique.

On the other hand, you could use composite tiles. In this case, you would want to draw the component 8x8 tiles in DPaint. Load the 8x8 tiles into tUME, then use these 8x8 tiles to construct a composite 64x64 pixel tile. Note that the composite tiles could be edited to a limited extent without returning to DPaint.

Composite tiles becomes more useful if you wanted to generate very large tiles, say, for example 256x256 pixels in size. At this size, it may become more convenient to design the large tiles in tUME instead of DPaint.

To create composite tiles, choose **Tiles|GridRoomAsTiles...**.

Editing Composite Tiles

After you have created a composite tileset, you may redefine which tiles make up the composite tiles. To make changes to the composite tileset, choose **Room|Lock** to unlock the composite room. The status bar will change from **CL** to **CU**. When the composite room is unlocked you may edit the composite tileset, and change the tiles that make up each composite tile. When you are finished changing the composite tiles, choose **Room|Lock** to lock the composite room again.

Thus, to continue our above example, while the composite tileset remains locked, drag-selecting will pick up a tile-brush made of 2x2 8x8 pixel composite tiles. While the composite tileset is unlocked, drag-selecting will pick up a tile-brush made of 8x8 tiles, and you can then stamp the 8x8 pixel tile-brush into the composite tileset.

Room User Types

All rooms can have a name, a type and a number. These are referred to as the Room Name, Room User Type and Room User Number. All of these have no significance or meaning except the meanings you give them for your project (which is usually the meaning assigned by your particular version of tUMEPack). To set or change the name, type or number of the current room, choose **Room|Set Info...** and enter the data you want to enter. Note that it is usually a good idea to give your rooms names because since the name is shown in the status bar it will help you to know which room you are looking at it if the imagery is unfamiliar.

Tile User Types

Tiles can also have types and numbers. As with rooms these types and numbers have only the meaning you assign to them. (see tUMEPack). To set the User Type and User Number of a tileset, first make sure you are on a Source Pane (looking at tilesets and not regular rooms). Now click on a tile that belongs to the tileset you want to give a User Type and User Number to, then choose **Tiles|Set Info...** and enter your numbers. To see what numbers have previously been assigned to a tileset use the 'User Info' mode of the status bar. (see status bar above)

Conversion Rooms

An idea we came up with when we first developed tUME was the idea of conversion rooms. A Conversion room is a room that is used to generate a table or tables for your game. Here are two example conversion rooms:

TANK Explosions

In one of our very first games, an arcade type tank combat game, we built levels out of tiles and we wanted to be able to leave explosion marks on the play field. The explosions were six tiles large, 2 tiles wide and 3 tiles tall. If an explosion happened on a particular tile we needed to know what kind of tile to change it to (i.e. a road tile would change to a road tile with an explosion crater on it). We also needed to know what tile to change the tile directly above the exploding tile to (i.e. a grass tile to a grass tile with vertical scorch marks). Then there was the tile up and to the left, the tile directly left, the tile down and to the left and the tile down or below the exploding tile. This would require one heck of a large table and would have been an incredible pain to do by hand in assembly language or C so instead of typing the table in by hand we used a Conversion room.

This conversion room was about 16 tiles wide, 16 tiles high and 7 layers deep. On the first layer our artists placed all the tiles in the game. On the second layer he placed the tiles that the first layer tiles would change into if an explosion happened down and to the right of them. The third layer said what tile to change into if an explosion happened one tile below them. The fourth, fifth, sixth and seventh layers were the other 4 cases; to the right, direct hit, up and to the right, directly above. (See TANK.MAP.)

M.C. Kids Alt/Collide

In M.C.Kids we had over 2688 different tile images but we had only 128 different tile types so the artist and I decided to use a conversion room. This conversion room was 16 by 512 tiles large and we decided to arrange it into strips of 3. By this I mean that the first row, row zero, was filled with actual image tiles used in the game. The second row, row one, was filled with what we called, collision tiles, these tiles looked like icons and were not actually used in the game. Instead they represented tile types. Types like, solid ground, slippery ground, M's, Cards, 1Ups, Sloped Right, Sloped Left, Spinners and on and on. If an image tile in the first row had a spinner collision tile under it in the second row then that image tile was a spinner in the game. The third row, row two, was filled with alternate image tiles. These were associated to the first row tiles in that they showed what the first row tiles could change into under certain circumstances. (i.e., a M tile would change into a sky tile when the M was collected.) See MCKIDS.MAP.

The version of tUMEPack for M.C. Kids read this room and created tables where by I, as a programmer, could tell what type of tiles the M.C. Kids are standing on or bouncing on or ...

Flat/Layered/Stripped/Why?

Conversion rooms can be created any way you like; it's all a matter of writing a version of tUMEPack that will create conversion tables from your conversion rooms.

Why do you want to use conversion rooms? Because they allow more flexibility. Some programmers will hard code their tile types: Tile 0 is sky, Tile 1 is ground, Tile 2 is death, etc. We prefer to encode such information in a conversion room so that it may easily be changed. Using conversion rooms allows the artists and the game designers to make fairly major changes to the game without programmer intervention. This means they can go on an create an awesome game without having to come badger you to make nearly as many changes or special programming considerations as you might otherwise. It also puts a lot of the work in there court with should mean less work for you.

In the past we've implemented many versions of tUMEPack to interpret Conversion rooms in a particular way.

Layered

This was the method describe above under 'Tank Explosions.' Using this method, conversion tables are created to associate tiles on layer 1 with tiles on layers 2, 3, 4 ...., one table for each layer above layer 1.

Flat

This method generates the same kind of data as the Layered type but instead of using layers we use columns or rows. Column 0 would be filled with the 'original' tiles and columns 1, 2, 3, ... would be filled with the tiles you want to associate with the tiles in column 0.

Stripped

This is the method described above under 'M.C. Kids Alt/Collide' Instead of the strips being 3 rows tall they could have been 2 rows, 4 rows or what ever we or you need.

Custom

Design your own. We will be happy to write a version of tUMEPack that will interpret a conversion room in whatever form is convenient for you.

Collision Maps

There are other ways to associate a type, collision or attribute with a tile. For example drawing your level on the first layer of a room and your collision map on the second layer using iconic tiles. Load the map **3LAYER.MAP** and look at the second layer. Notice that this layer just defines the collision map of the level. You could store both maps in your game or you could have tUMEPack create a conversion table for you. (See TPGEN.)

Object Layers

Another thing you can do with tUME is to create a layer and in that layer place objects (or sprite objects). Load the map **3LAYER.MAP** and look at the third layer. It is filled with iconic tiles that represent various sprite objects that appear in the level. Things like gophers, spiders, moving platforms, boats, zippers and other objects. The M.C. Kids version of tUMEPack would take that layer and create a table of objects where each entry in the table had four elements, X Position, Y Position, Type of Object (i.e. Gopher, Spider, Boat), Y Index. (See TPNES.)

Downloading to a Development System

tUME can support downloading the current layer of the current room to a development system from within the program, allowing you to quickly see how the graphics and colors will appear on your target system.

Currently, the program supports downloading to a Chip Level Designs connected SNES or Western Technologies SegaDev connected Genesis. On the SNES, the downloader currently supports mode 2 (8x8 pixel characters, 8 palettes of 16 colors each) and mode 3 (256-color 8x8 pixel characters). On the Genesis, the downloader supports 40 column mode.

To download the current room, first make sure that the SNES or Genesis is connected to the PC, and that tUME map downloader program is running on the SNES (or Genesis). The easiest way to load the SNES or Genesis with the correct program is to type `CLDTUME` (for CLD SNES) or `SDTUME` (for SegaDev) at the DOS prompt. If the program loads successfully, you should see a blue screen on the SNES with the following words on screen:

```
tUME Map Scroller
Copyright (c) 1992 Echidna
Ready.
```

Next, make sure that the tiles in the room you want to download are some multiple of 8x8, such as 8x8, 8x16, or 16x16. Choose **Layer|Download|16-Color Chars** to download the current layer of the current room, or choose **Layer|Download|256-Color Chars** to download a 256-color characters. Both options perform the same function on a SegaDev connected Genesis.

By default, tUME only downloads only one SNES screen worth of graphics, by you can download the entire room by choosing **Layer|Download|One Screen** to toggle off the one screen mode.

Once you have a map downloaded, if the live palette feature is active (choose **Room|Live Palette**), adjusting colors in the palette editor (press `p` or choose **Room|Set Palette**) will also adjust colors on the SNES or Genesis.

Cookbook

How do I make frequently used tile-brushes easily accessible?

The easiest way is to create a locked **parts room** that holds a copy of frequently used brushes. Then you can switch between your edit room and your locked 'parts' room by simply pressing `[Spacebar]`. Create a small room with as many layers as needed to hold your tile-brushes. Stamp your tile-brushes into this 'parts' room. Choose **Room|Lock** to make this 'parts' room appear in the source pane. Now press `[Spacebar]` to switch to the source pane, and then press `1` or `2` repeatedly until you find your 'parts' room. At this point, subsequent presses of the `[Spacebar]` will switch between your edit room and the 'parts' room.

To help you select your brushes, you may wish to place the upper-left corner of each tile-brush in a grid, and then create a guide to help you find the upper-left corner of each tile-brush.

How do I move a layer?

You can pickup an entire layer by grabbing the entire floor layer as a tile-brush using the `v` key (or choosing **Brush|Select Plane**) and then changing the floor to a new layer and stamping your tile-brush. Alternatively, you could save the layer you wish to move, change to the new layer, and load the saved layer back into memory.

How do I create a blueprint for large rooms?

If you are creating a really big room, and you need some help setting things in place, you can draw a small representation of your room in DPaint where each pixel represent a tile. Save your picture as a brush the size you want the room. An external program called `MAKEROOM.EXE` will take your picture and create a loadable tUME map with a room the size of the brush you saved. Inside this room there will be a tile #1 for each pixel of color 1 in your picture, a tile #2 for each color 2 pixel in your picture, etc. This can be helpful for things like creating large circles of tiles and other shapes.

How do I load a DPaint picture as a map?

A program called `CUTTILES.EXE` will take a DPaint picture and cut it into tiles. First it divides the picture into tiles and discards tiles of common colorsets and tiles that are a flipped version of other tiles. Then it creates a DPaint picture of the tiles, as well as a map to load using these new tiles to re-create your original DPaint picture in tUME. See **Importing and Exporting Maps: CUTTILES.EXE**.

How do I find tiles that are "infrequently used"?

Use the show tile usage option. See **Tiles|☐Show Tile Usage** and **Tiles|Set Usage Limit...**

How do I count tiles?

If you want to know how many times a specific tile or tile-brush appears, then choose **Brush|Count** to count the number of occurrences of the brush in the current layer.

If you want to count the number of characters in a tileset, then choose **Tiles|Count**.

How should I set DPaint up when editing tiles?

If you have tiles arranged in the upper left corner, and you are using the **Tiles|Load...|Full Tiled** option, the **Tiles|Load...|Tiled Blanks** option, or the **Tiles|Load...|All Tiled** option, then this tip is for you.

A great way to manipulate tiles in DPaint is to set up a **grid**. Click the right mouse button on the Grid Tool and type in your tile size (usually 16x16), now click on **Adjust** and press `[F10]` to remove the menus, move the cursor to the top left pixel and click the left mouse button. Press `[F10]` to bring the menus back, and then choose **Pref|Exclude Edge**. Now it is easy to grab tiles in DPaint for manipulating. Press `g` to turn the grid off if you want to edit an individual tile, and press `g` again to go back to manipulating whole tiles.

How do I copy a tUME project to another machine?

You must copy the map file, and all DPaint tileset pictures associated with that map file. There are two problems here: 1) making sure all the DPaint tileset pictures get moved to the new machine, 2) making sure that tUME can find the DPaint tileset pictures on the new machine.

tUME doesn't help you solve the first problem; the easiest solution is to ask whoever created the map to make a list of the source DPaint tileset pictures. If you are missing a tileset picture, and you can't remember its name, you can choose **Tiles|Set Info...** on that source tileset and it will display the filename it is using to load the DPaint picture. Note that you may have several different tilesets displayed in the same room; be sure to check all of them.

The second problem is that tUME remembers which directory to look in to find a DPaint tileset picture. One solution is to place the DPaint tileset pictures in the same sub-directory as the map file, and then tell tUME to search the current sub-directory by setting `SearchAsSpecified=0` and `SearchCurrentDir=1` in the `[Load Options]` group of the tUME.INI file.

If you prefer to keep DPaint tileset picture in its own directory separate from tUME map files, then you have two options: 1) make the exact same directory and sub-directory structure on the new machine as on the old; or 2) use the `[Load Options]` group command `SearchDir=`*`search_directory`*. See **Configuring Tileset Search Path** section of the *tUME Configuration Guide*.

How do I find the location in the tileset source room for a particular tile?

See **Tiles|Highlight Tile**, below.

How do I make the tiles automatically go to the right layers?

See the **Stratify Paste** section, below.

How do I associate a separate collision layer with my map?

Add a second layer to your room, load in collision tiles and assign them a Tileset Type of Contour Tiles, then paste these Contour Tiles into the second layer. See the second layer of the example map **3LAYER.MAP**.

How do I associate a collision tile with each image tile?

As an alternative to creating a second layer with collision information, you may create a **conversion room** (which see) that associates each **Image Tile** with a corresponding **Contour Tile**. One way to organize conversion rooms is by having two rows next to each other, where the top row specifies the image, and the bottom row specifies the contour for that image. See the **Conversion Room** in the example map **CONVERT.MAP**.

How do I specify where objects/monsters go on my map?

Add a fourth layer to your room, load in icons of **objects** tiles and assign them a Tileset Type of Object Tiles, then paste these Object Tiles into the fourth layer. If you do not want four layers, edit the tUME.INI to redefine the meaning of layers. In the example **3LAYER.MAP**, the objects have been given the tiletype of Special Tiles, and they appear in the third layer.

How do I define an invisible path for my player/vehicle to follow?

In an manner analogous to defining a collision layer, you draw special tiles that represent a path for a player or vehicle to follow. You may paste these tiles into the same layer as the Contour Tiles, or create another layer for paths only. The choice is entirely yours, and you should modify tUMEPack to process path tiles appropriately.

Reference

Project Menu

Load... (keyboard equivalent: [Alt]-l)

Choose this option to load a tUME IFF map file that was previously saved using **Project|Save...|Normal**, **Project|Save...|Save+TMGC**, or **Project|Save|Save+TMGX**. All tilesets and rooms in memory will be cleared before loading the new map.

Append...

Choose this option to append a tUME IFF map file that was previously saved using **Project|Save...|Normal**, **Project|Save...|Save+TMGC**, or **Project|Save|Save+TMGX** to the one currently in memory.

Save...

Choose one of the following three option to save all tilesets and rooms in memory to a tUME IFF map file. The Save+TMGC and Save+TMGX saves additional information that is need by some tUMEPacks. See the *tUME Programmer's Guide* for a description of TMGC and TMGX chunks.

Normal (keyboard equivalent: [Alt]-s)

Choose this option to save all tilesets and rooms in memory to a tUME IFF map file.

Save+TMGC

Choose this option to save all tilesets and rooms in memory to a tUME IFF map file. Also save an additional TMGC chunk in the tUME IFF map file that contains the graphic image of all tiles. Some tUMEPacks, such as tPMCKid2, need this information to operate properly.

Save+TMGX

Choose this option to save all tilesets and rooms in memory to a tUME IFF map file. Also save an additional TMGX chunk in the tUME IFF map file that contains the graphic image of all tiles. Some tUMEPacks, such as tPMCKid2, need this information to operate properly.

Clear...

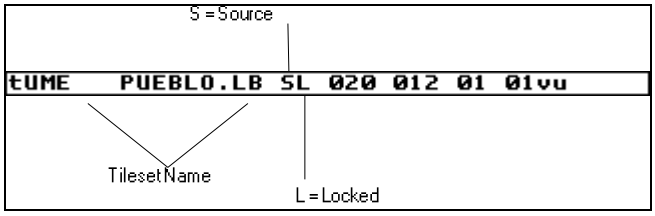
Choose this option clear all tilesets and rooms from memory.

Show Status

Choose one of the following six options to change what is displayed in the status bar:

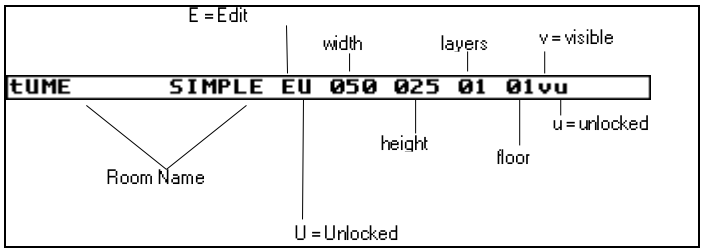
Room Info (keyboard equivalent: [F6])

'Room Info' for Source Room



When you choose this option on a source room, you will see a status bar as pictured above. The **Tileset Name** displays the name for the first tileset in this room. **S** stands for Source room and **L** stands for Locked Room. The rest is the Width, Height, Depth, Floor, and flags for this room; for a source room this information is not very useful. If there is a '-' dash in front of the **Tileset Name** then these tiles have been marked so that their graphics will not be saved.

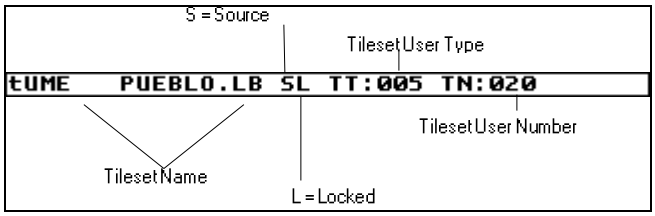
'Room Info' for Edit Room



When you choose this option on an edit room, you will see the **Room Name**. **E** stands for Edit Room, **U** stands for Unlocked (Unlocked means you can edit it). The room above is 50 tiles wide, 25 tiles tall and 1 layer deep. The floor is set to layer 1 and it is visible and unlocked (editable).

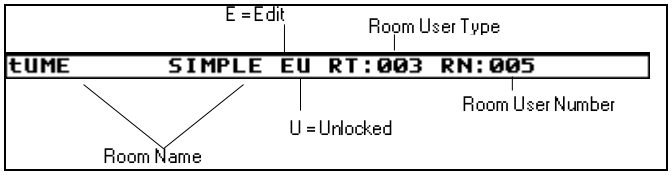
User Info (keyboard equivalent: [F7])

'User Info' for Source Room



When you choose this option on a source room, you will see the above status bar. Clicking on a tile will show you that tile's **Tileset User Type** and **Tileset User Number**.

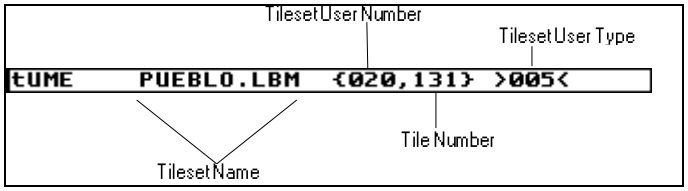
'User Info' for Edit Room



When you choose this option on an edit room, you will see the above status bar. The status bar shows the room's **Room User Type** and **Room User Number**.

Tiles (keyboard equivalent: [F5])

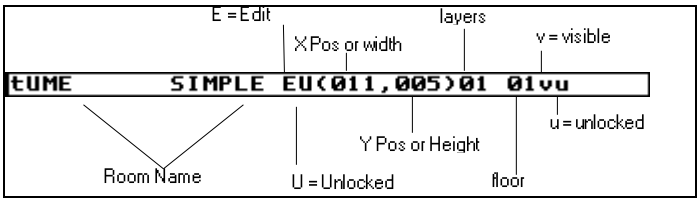
'Tiles' status bar for Source and Edit Room



When you choose this option, you will see the above status bar displaying information about the tile under the pointer. In a source room the tile must be clicked on but in an edit room you may just move the pointer. Shown is the Tile's **Tileset Name**, **Tileset User Number**, its **Tile Number** and **Tileset User Type**. Tiles are numbered 1 to N where N is the number of tiles in the current Tileset. If there is no tile under the cursor the message (NULL TILE) will be displayed.

Coordinates (keyboard equivalent: [F9])

Coordinates for Edit Room



When you choose this option, you will see the above status bar. Coordinates don't make much sense for a source room but in an edit room, the position of the tile under your pointer will be displayed. If you are grabbing a tile-brush then the display changes to show the brush width and height while you select it.

Version

Choose this option to display the tUME version number in the status bar.

Copyright

Choose this option to display the tUME copyright in the status bar.

☐TitleBar (keyboard equivalent: [F10])

Check this option to make the status bar appear.

About tUME

Choose this to display how much main, EMS and XMS memory is available, and other useful facts about tUME.

Quit (keyboard equivalent: [Shift]-Q or [Alt]-x or q)

Choose this option to leave tUME. Please make sure that you have saved your most recent changes using **Project|Save...|Normal** before exiting; tUME does not warn you about unsaved changes.

Tiles Menu

Load...

A tileset is created whenever you load a DPaint picture into tUME. Every time you load some tiles into tUME from a DPaint picture you create a new tileset. tUME does not group tiles from different pictures into one tileset.

When you load a tileset you are given the option to 'append' the new tileset to a pre-existing tileset source room. If you choose yes, the new tiles will be appended to the room you choose. You may have to scroll through the room to see all the tiles. If you choose not to 'append' then the new tiles are loaded into their own source room. To change the source room you are viewing press 1 or 2. 1 moves backward through the source rooms and 2 moves forward. If you get the message (no more to show) that means there is only one source room.

Choose one of the following five load options to load a DPaint picture into tUME for use as a source tileset (If you can't decide between which of the five loading methods to use, I recommend using **All Tiled** as it is not sensitive to the background color, and is more forgiving about adding tiles to the source picture):

Full Tiled

This method asks for the size of the tiles. Then it proceeds to cut tiles of the specified size starting at the top left corner of the picture and proceeding to the right. When it finds two consecutive blank tiles it will stop scanning the current row and go down to the next row of tiles. If the next row starts with two blank tiles it will stop scanning completely and assume it has finished.

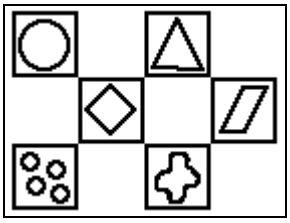
NOTE: tUME decides which tiles are blank by looking at the 'background' color from your DPaint picture. The background color is the last color you selected for the right mouse button in DPaint. Pay special attention to this color. If you draw a picture with 4 tiles and pull it into tUME and then later you edit those 4 tiles in DPaint and you accidentally change the background color, tUME will now pull in a lot more then 4 tiles because it will won't find

any blank tiles. To see what I mean, load **GOODBACK.LBM** using **Tiles|Load...|Full Tiled** tileset and set the size to 16x16. Then load **BADBACK.LBM** the same way. Note that the only difference in DPaint is the current background color in the tool palette (or icon bar). The biggest problem here is that your maps will look all messed up if you make this mistake. If you maps get totally screwed up remember to load your tilesets into DPaint and check their background color. That is usually the problem.

WARNING! This load method is **not** recommended if you are still adding tiles to your DPaint picture! E.g., you have twenty tiles in your picture, with five rows of four tiles each. If you add a tile to the end of the first row, **all subsequent tiles will be renumbered, while your maps will still contain the old numbers!** If you wish to add tiles to a picture loaded with the Full Tiled method, then you will need to add it to the **end** of the DPaint picture.

Tiled-Blanks

Tiled-Blanks works like Full Tiled except that when a blank tile is found, it is not added to the tileset. For example, if you loaded a DPaint picture that looked something like:



Using the Full Tiled method your tiles would be loaded as follows

tile #1	tile #2	tile #3	tile #4
tile #5	tile #6	tile #7	tile #8
tile #9	tile #10	tile #11	tile #12

Using the Tile-Blanks method you tiles would be loaded as follows instead

tile #1	NULL	tile #2	NULL
NULL	tile #3	NULL	tile #4
tile #5	NULL	tile #6	NULL

WARNING! This load method is **not** recommended if you are still adding tiles to your DPaint picture! E.g., you have twenty tiles in your picture, with five rows of four tiles each. If you add a tile to the end of the first row, **all subsequent tiles will be renumbered, while your maps will still contain the old numbers!** If you wish to add tiles to a picture loaded with the Tile-Blanks method, then you will need to add it to the **end** of the DPaint picture.

All Tiled (keyboard equivalent: `[Ctrl]-l`)

This method asks for the size of the tiles. Then it proceeds to cut tiles of the specified size starting at the top left corner of the picture and proceeding to the right. This method cuts out every tile in the picture on the grid regardless of whether it is 'blank' or not.

NOTE: It is **safe** to add tiles anywhere in the source DPaint picture loaded using this method, **so long as you do not change the width of the DPaint picture**. You may also add additional tiles by lengthening the picture. If you obey these two rules, the tiles will not renumber.

As Brushes

This method expects to find the tiles in a grid, with background color separating the tiles. tUME loads the picture and scans for the first pixel that is not the background color. When it finds that pixel it then assumes it is the start of the first tile and scans it to figure out the size of the tile. It then assumes that the tiles are laid out in a grid so it scans

to the right to find the next tile and it scans down to find the next row of tiles. Now it knows the size of a tile and the distance between the tiles so it quickly pulls in the rest of the tiles. See example file **BRUSHES.LBM**.

NOTE: If you want to add more tiles as brushes, you should add them below all existing brushes.

Boxed

The boxed method expects to find the tiles in a grid, with a one pixel border (the 'box') around each tile. tUME loads the picture and scans for the first pixel that is not the background color and is not the same as the pixel in the top left corner of the screen. When it finds that pixel it then assumes it is the start of the first box and scans it to figure out the size of the tile. It then assumes that the tiles are laid out in a grid so it scans to the right to find the next tile and it scans down to find the next row of tiles. Now it knows the size of a tile and the distance between the tiles so it quickly pulls in the rest of the tiles. See example file **BOXED.LBM**.

NOTE: If you want to add more boxed tiles, you should add them below all existing brushes.

GridRoomAsTiles...

Choose this option to make **Composite Tiles** (which see, above).

E.g., the "native" tile size is 8x8 pixels, and you want to use 16x16 pixels characters that are created from the 8x8 pixel characters.

1. Draw your 8x8 pixel tiles and load them into tUME as 8x8 pixel tiles.

2. Create a room large enough to hold your composite tileset (say 16x16 tiles), and fill it with your 8x8 pixel tiles placing your tiles in a 2x2 tile grid (see the 16x16 Composite room in **COMPOSIT.MAP**).

3. Choose **Tiles|GridRoomAsTiles...** tUME will bring up a dialog box about the composite tileset.

4. You must give each composite tileset a unique name. If you gave your edit room a name when you created it, it appears in the topmost box as the default composite tileset name. If the topmost box is empty, then you need to click in it and type in a unique name to identify this composite tileset.

5. Press `[Tab]` three times to move the cursor to the Tile Width edit box then type `2`. Press `[Tab]` once to move the cursor to the Tile Height edit box then type `2`. This tells tUME we want to create composite tiles that are two tiles wide by two tiles high.

6. We're done, so click on **OK**.

Voila - tUME has created a new composite tileset made of 2x2 tiles created from 8x8 pixel tiles. These composite tiles may be used in exactly the same manner as a tileset made of 16x16 tiles. You may freely mix composite tiles and source tiles in an edit room, as long as they are the same size (e.g., a source room made of 16x16 pixel tiles would be the same size as a composite tileset made of 2x2 8x8 pixel tiles).

When you created a composite tileset, it appears in a locked room (status bar says **CL** to the right of the room name).

Now create a new room, grab some of your 16x16 pixel composite tiles and paste them into the new room. You may even create composite tile out of the 16x16 composite tile (though I don't know why you'd want to do that).

Save...

Choose this option to save all tilesets in the TMGX chunk in a map file. See the *tUME Programmer's Guide* for more information about TMGX chunks. If you want to save the tilesets in the TMGC chunk instead of TMGX, choose **Project|Save...|Save+TMGC**.

Delete...

Choose this option to delete a tileset. Generally speaking, you will not want to delete a tileset. But occasionally, say perhaps you accidentally loaded a tileset that you don't need, you'll want to delete the unnecessary tileset.

To delete a tileset, make the source room with the tileset to delete visible. Select one of the tiles in the tileset to delete, and choose **Tiles|Delete...**. tUME will ask you if you are sure you want to delete the tileset and all references to that tileset. Click **Yes**.

Note that any tiles from the deleted tileset occurring in any edit rooms will be set to NULL tiles after the delete tileset operation.

Set Info...

Choose this option to change a tileset's name, tileset type, tileset number, or its comments.

The type and number have no significance or meaning except the meanings you give them for your project (which is usually the meaning assigned by your particular version of tUMEPack).

The long box that runs the entire length of the dialog box along the top is the tileset name. This is DPaint file that was loaded to create the tiles for this tileset.

The tileset type (**User Type**) can be entered by either typing a number in the box or (better yet), by selecting a choice from the tileset types list on the left side of the dialog box.

The two comment lines at the bottom are descriptions that you want associated with the current room. Some tUMEPacks use these lines to list additional switches specifying how the current tileset should be processed.

Count (keyboard equivalent: `[Alt]-c`)

Choose this option to count characters. This feature is user-definable, and may be used to count the total number of characters in your source tileset, the number of characters used in a specific room, or the number of characters used in all rooms.

As supplied, tUME will count the number of 8x8 image characters (TilesetType = 0) loaded. It counts SNES mode 2 characters, so it only looks at the lowest four bits in determining whether two tiles have the same image. It will check for X-flip, Y-flip, and XY-flip in determining whether two characters are the same. Tiles that also appear in Table Rooms (RoomType = 1) get count separately, without merging duplicate tiles nor checking for flipped tiles.

To change how tUME counts characters, see the **Configuring Character Counting** section in the *tUME Configuration Guide*.

Highlight Tile (keyboard equivalent: `[Alt]-h`)

Sometimes, when you have many source tiles, it becomes difficult to see where a particular tile is defined. Choose this option to locate the tile within the source room where the tile is defined.

To highlight a tile in a source room, first select a tile-brush that includes the tile you wish to highlight in the upper left corner. Choose **Tiles|Highlight Tile** (or press `[Alt]-h`), and tUME will change the view to show the source room and the highlighted tile.

If there are more tiles in the tile-brush then subsequent presses of [Alt]-h will cycle through the tiles in the tile-brush from left to right, top to bottom, floor layer to ceiling (wrapping at end).

☐Show Tile Usage (keyboard equivalent: `[Alt]-u`)

Check this box to make a grid of tile usage numbers to appear over every floor tile in the room. The number shows how many times the tile in the floor layer is used.

The numbers have different meanings, depending on whether the room is an edit or a source room. In an edit room, the tile usage number indicates how many times the floor tile appears in the **current** edit room only. In a source room, the number indicates how many times the floor tile appears in **all** edit rooms.

If the tile usage count is too large to be displayed in the current tile, +'s will displayed instead of the tile usage count. In this case, zoom in to make each tile larger and to show more of the tile usage count.

You can limit the largest tile usage count displayed by choosing **Tiles|Set Usage Limit...**

Set Usage Limit...

Choose this option to bring up a dialog box that will allow you to set the largest tile usage count that will be displayed. Enter a new maximum tile usage count, press `[Enter]`, and tUME will display all tile usage counts that are less than or equal to your limit value.

E.g., you want to see tiles that are "infrequently used". You have arbitrarily decided that a tile is infrequently used if it appears five times or less. Choose **Tiles|Set Usage Limit...**, enter `5`, and press `[Enter]`. tUME will now display tile usage numbers only for the tiles that are used five times or less.

Export...

Choose this option to save every tile of every tileset as a brush. For every tileset loaded that has its ☐**SAVE GRAFX** box checked (found in the **Tiles|Set Info...** dialog box), tUME will bring up a file requester asking you to enter the base name of the sub-directory to create. tUME will append '.TBI' to the entered base name to create the sub-directory name, and then it will save every tile in the tileset as a brush within that sub-directory.

E.g., there is a tileset named `CONTOUR.LBM`. Choose **Tiles|Export...**, and tUME brings up a file requester that asks "TBI for CONTOUR". You enter `TEST`. tUME will create a sub-directory TEST.TBI, and then it will save all tiles as IFF brushes in `TEST.TBI` as `CONTOUR.001`, `CONTOUR.002`, etc.

Room Menu

Create...

Choose this option to create a new edit room. A dialog box will appear, allowing you the enter the name, room type, room number, size, and comments for the new room. Please see **Room|Set Info...**, below, for a description of the fields in the dialog box.

Load...

Choose this option to load a room that was saved using the **Room|Save...** option into the current map.

Save...

Full

Choose this option to save the current room and all tilesets as a map.

Stripped

Choose this option to save the current room and only those tilesets that are actually used by the room as a map.

Clear...

Tiles

Choose this option to clear all the layers of the room to NULL tiles. Note that tUME remembers the size of tiles that was pasted into this room.

Complete

Choose this option to delete all layers but one and to clear the remaining layer to NULL tiles. Note that the tile size is reset (you may paste any size tile into this room), and that any tile-brush from this room will also be cleared.

Delete...

Choose this option to delete the current room. Note: If the brush is from the current room, it will be deleted as well.

Set Info...

Choose this option to change a room's name, room type, room number, size, or its comments.

The name, type and number have no significance or meaning except the meanings you give them for your project (which is usually the meaning assigned by your particular version of tUMEPack).

The long box that runs the entire length of the dialog box along the top is the room name. This is used by some tUMEPacks (such as tPMCKid2) to specify the DOS filename to use for the room.

The room type (**User Type**) can be entered by either typing a number in the box or (better yet), by selecting a choice from the room types list on the left of the dialog box.

Set the width and height of the room in tiles by changing the numbers in the Room Width and Room Height boxes.

The two comment lines at the bottom are descriptions that you want associated with the current room. Some tUMEPacks use these lines to list additional switches specifying how the current room should be processed.

☐Lock...
Check this box to lock a room and prevent brushes from being pasted into the room. Locking a room makes it easier to select tiles from the room; you can drag-select tiles from it without first pressing `b`. When a room is locked it will now longer show up on the edit pane, instead it will show up on the source pane.

Copy Color
The copy color options allow you to copy colors from one room to another. Select a tile-brush from the source room, move to the destination room, then select one of the following three options.

All
Choose this option to copy the color cycling information and the palette from the tile-brush to the current room.

Palette
Choose this option to copy just the palette (256 color) from the tile-brush to the current room.

Color Cycles
Choose this option to copy the color cycling information from the tile-brush to the current room.

Set Palette... (keyboard equivalent: `p`)
Choose this option to bring up the palette requester for the current room. See **Palette Requester**, above.

☐Live Palette
Check this box will cause the palette to be sent to an attached development system every time you make a change in the palette requester. This will allow you to adjust colors and see the results on the target machine immediately. See **Download to a Development System**, above.

☐Color Cycle (keyboard equivalent: `[Tab]`)
Check this box to show any color cycles you have defined for the current room. See **Palette Requester**, above, for information about defining a color cycle range.

Export...
Choose this option to export the current room as an IFF picture. See **Exporting Rooms**, below.

Print...
Choose this option to print the current room to a HP LaserJet. See **Printing Rooms**, above.

Layer Menu

Add
Choose this option to add a layer to the topmost layer of the current room.

Insert
Choose this option to insert a new layer at the floor layer of the current room. The previous floor layer and all layers above the floor get pushed up by one.

Load...
Choose this option to load a saved layer and insert it as the current floor layer of the current room. The previous floor layer and all layers above the floor get pushed up by one.

Append...
Choose this option to load a saved layer and append it as the topmost layer of the current room.

Save...
Choose this option to save the floor layer of the current room.

Delete...
Choose this option to delete the floor layer of the current room.

Move Up (keyboard equivalent: [Alt]-↑)
Choose this option to move the floor up one layer. Note that you may also press [Alt]-[Shift]-↑ to move to the topmost layer.

Move Down (keyboard equivalent: [Alt]-↓)
Choose this option to move the floor down one layer. Note that you may also press [Alt]-[Shift]-↓ to move to the bottommost layer.

☐EditOnlyFloor (keyboard equivalent: [Alt]-f)
Check this option to display only the floor layer, and to limit editing to only the floor layer. **EditOnlyFloor** is a global operation. This means that it affects the view of all rooms until you turn it off. A lower-case f will appear in the extreme right of the status bar to indicate you are in **EditOnlyFloor** mode.

☐Invisible
Check this option to make the floor layer invisible. An invisible layer is still editable.

☐Lock (keyboard equivalent: l)
Check this option to lock the floor layer. A locked layer is not editable.

Invis+Lock (keyboard equivalent: i)
Choose this option to make the floor layer locked and invisible. A locked layer is not editable.

Download
☐One Screen
Check this option to download only one screen of data at a time (instead of the entire layer size). This affects the next two menu options. See **Download to a Development System**, above.

16-Color Chars
Choose this option to download the floor using 16-color characters. If **Download|☐One Screen** is selected, only the screen around the pointer position will be downloaded. See **Download to a Development System**, above.

256-Color Chars
Choose this option to download the floor using 256-color characters. If **Download|☐One Screen** is selected, only the screen around the pointer position will be downloaded. See **Download to a Development System**, above. This option has the same effect as **Download|16-Color Chars** on SEGA Genesis systems.

Brush Menu

Undo (keyboard equivalent: u)
Choose this option to removes the last tiles stamped. Choose this option again to restore the last tiles stamped.

Select Block (keyboard equivalent: b)

Choose this option to select a tile-brush from the floor layer and every layer above it. After pressing b, drag-select tiles using either the left or right mouse button. Drag-selecting using the left mouse button will leave a copy of the image in the current room, while drag-selecting using the right mouse button will "cut" out the image and leave NULL tiles. See **Editing Layers**, above.

Select Plane (keyboard equivalent: v)

Choose this option to select a tile-brush from the current floor layer. After pressing v, drag-select tiles using either the left or right mouse button. Drag-selecting using the left mouse button will leave a copy of the image in the current room, while drag-selecting using the right mouse button will "cut" out the image and leave NULL tiles. See **Editing Layers**, above.

Strip Brush (keyboard equivalent: [Shift]-X)

Choose this option to remove all layers except the bottommost layer from the current tile-brush.

Search

tUME allows you search for a particular tile-brush, and to replace what you've found with another tile-brush.

Set Buffer (keyboard equivalent: [Ctrl]-s)

Choose this option to place the current tile-brush in the Search Buffer. tUME will search for whatever is in the Search Buffer.

Search (keyboard equivalent: s)

Choosing this option will search across, then down, starting at the current pointer location, for the next occurrence of the Search Buffer.

To find a particular group of tiles, follow these steps:

1. Select the tiles to search for: press v or b, then select the tiles you want to search for.

2. Place the tiles to search for in the Search Buffer by pressing [Ctrl]-S or choosing **Brush|Search|Set Buffer**.

3. Switch to the room you wish to search, then position the pointer to where you want to start searching from. Note that if you position the pointer directly over a match, search will find the next match.

4. Press s or choose **Brush|Search|Search** to find the first match. tUME will search across, then down starting from the current pointer location. The room will be re-positioned, and the pointer will be placed over the match, which will be surrounded by an outline.

5. Press s again to find the next match. Once a match has been found, subsequent searches will continue from the previous match (the search outline).

When searching, tUME matches tiles starting from the current floor and up. Invisible layers match everything. E.g., you place a three layer brush in the Search Buffer. In the edit room, you place the floor on the first layer, and you make the second layer invisible. tUME will match the first layer of the Search Buffer with the first layer of the edit room, and the third layer of the Search Buffer with the third layer of the edit room. Since the second layer of the edit room is invisible, it matches everything, and is not compared against the second layer of the Search Buffer.

Note: you may wish to press [Ctrl]-[Home] between steps 3 and 4 to move to the start of the room.

Note: when you place a tile-brush into the Search Buffer, the previous match (search outline) is removed.

Note: by default, searching tries to match tile-flipping, tile-priority, and tile-colorsets exactly. However, you may change this by modifying the [Search Options] section tUME.INI file. See **Configuring Search and Replace** section of the *tUME Configuration Guide*.

Replace (keyboard equivalent: `r`)

Choosing this option will search across, then down, starting at the current pointer location, for the next occurrence of the Search Buffer and bring up a dialog box asking if you want to replace what was found with the tile-brush.

To find a particular group of tiles, and replace the tiles with another group of tiles, follow these steps:

1. Select the tiles to search for: press `v` or `b`, then select the tiles you want to search for.

2. Place the tiles to search for in the Search Buffer by pressing `[Ctrl]-S` or choosing **Brush|Search|Set Buffer**.

3. Select the tiles to replace with: press `v` or `b`, then select the tiles you want to replace with.

4. Switch to the room you wish to search and replace, then position the pointer to where you want to start searching and replacing from. Note that if you position the pointer directly over a match, the replacing will start from the next match.

5. Press `r` or choose **Brush|Search|Replace** to find the first match. tUME will search across, then down starting from the current pointer location. The room will be re-positioned, and the pointer will be placed over the match, which will be surrounded by an outline.

6. tUME will bring up a dialog box that asks you, "Replace tiles?", with four options: **Yes**, **No**, **All**, and **Exit**.

   A. Selecting **Yes** or pressing `[Enter]` will replace the matching tiles with the tiles in the tile-brush, and tUME will find the next matching tiles, and bring up the "Replace tiles?" dialog box again.

   B. Selecting **No** will skip replacing this match, and tUME will find the next matching tiles, and bring up the "Replace tiles?" dialog box again.

   C. Selecting **All** will cause tUME to find each and every matching group of tiles in the current room, and replace each and every one with the current tile-brush. Pressing `[Spacebar]` will interrupt this function.

   D. Selecting **Exit** or pressing `[Esc]` will stop the replace function.

Notes about Search and Replace:

You may undo the last search and replace operation by pressing `u`.

Invisible layers match everything; they are not searched.

tUME only replaces tiles in unlocked layers. Search and replace uses the current brush paste mode setting (either paint mode or replace mode) when replacing tiles.

❍**Paint** (keyboard equivalent: `[F1]`)

Check this option to set the paint mode. In this mode, stamping with the left mouse button will stamp only the non-NULL tiles in tile-brush into the room. Stamping with the right mouse button will erase tiles in the room to NULL only if the corresponding tile in the tile-brush is non-NULL.

❍**Replace** (keyboard equivalent: `[F3]`)

Check this option to set the replace mode. In this mode, stamping with the left mouse button will stamp both NULL and non-NULL tiles in tile-brush into the room. Stamping with the right mouse button will erase the entire rectangular tile-brush area to NULL tiles.

☐**Stratify Paste**

Check this option to enable the Stratify Paste mode.

If you are editing several layers, it can be troublesome to have to keep moving up and down layers to paste to the right layer. tUME has a feature called **Stratify Paste** which automatically sends tiles to the right layer when you

paste. To make this feature work, check **Brush|☐Stratify Paste**. Now when you paste tiles into an edit room, the tile will go to the layer defined by its Tileset Type.

Image Tiles, **4-Color Tiles**, **256-Color Tiles**, and **Mode 7 Tiles** all get pasted into the first layer. **Contour Tiles** are pasted into the second layer, **Special Tiles** into the third layer, and **Object Tiles** into the fourth layer.

The layers that tilesets are pasted into may be changed by editing the tUME.INI file; see the **Redefining Tileset Types** section of the *tUME Configuration Guide*.

Set Brush Mode

Normal (keyboard equivalent: `[keypad .]`)

Choose the option to exit the colorset coloring mode. See **Colorsets**, above.

Recolor (keyboard equivalent: `[keypad 0]`)

Choose the option to enter the colorset color-erase mode. See **Colorsets**, above.

Count (keyboard equivalent: `h`)

Choose this option to count the occurrences of a tile-brush in the current room.

tUME can tell you how often the tile-brush appear in the current layer of the current room. Press `v` to select a single layer brush, then drag-select the tiles you wish to count. Choose **Brush|Count** to count the number of occurrences of the brush in the current layer.

This function also extends across layers. If you press `b` to select your brush, then all layers in the brush must match, starting with the current floor layer and proceeding up. Thus the first brush layer must match the tiles in the floor layer, AND the second brush layer must match the tiles at the same X, Y coordinates in the next layer above the floor layer, and so forth.

If you make a layer invisible, then tUME will not match the tiles in that layer. E.g., you have a three layer room, and you are on the first layer. The first and third layers are visible, and the second layer is invisible. You press `b` to select a brush. Now when you choose **Brush|Count**, tUME will look at only the first and third layers in determining if the brush matches.

☐Show Tile-brush

Check this option to enable the Stratify Paste mode.

Check this option to display the floor layer of the current tile-brush you are holding as you drag it around. If this option is not checked, only an outline of the tile-brush will be shown. Showing just the outline causes the display to update slightly faster, and also allows you to see under the tile-brush to the room below.

☐Hide Cursor (keyboard equivalent: `[F8]`)

Choose this option to hide the current mouse pointer.

Export...

Choose this option to export the current brush as an IFF picture. Note that the zoom and tile-spacing setting of the current room affects the exported image.

View Menu

Flip Panes (keyboard equivalent: `[Space]` or `j`)

Choose this option to display the other pane. Each window has two panes, a source pane and an edit pane.

Prev Room (keyboard equivalent: `2`)

Choose this option to display the previous room in the current pane's list of rooms.

Next Room (keyboard equivalent: 1)
Choose this option to display the next room in the current pane's list of rooms.

Zoom

☐Toggle Zoom (keyboard equivalent: m)
Check this option to enlarge or reduce the display of tiles in the current pane.

Zoom Out (keyboard equivalent: <)
Choose this option to reduce the display of the current pane by one zoom setting.

Zoom In (keyboard equivalent: >)
Choose this option to enlarge the display of the current pane by one zoom setting.

Grid
Setting a drawing grid limits where you can draw tiles. If you set the grid to 4x4 then you will only be able to draw every 4 tiles across and 4 tiles down. You can toggle the grid on and off by pressing g (or choosing **View|Grid|☐ Use Grid**). Grids have two attributes, the grid size, and the grid origin (where the upper left corner of the grid resides).

To set the grid size, use **View|Grid|Set Grid Size** or **View|Grid|Get Brush Size**. The grid size defaults to 2x2 tiles if you don't set it. To set the grid origin, move the cursor over the tile that you want to use as the grid origin, then press [Shift]-G.

☐Use Grid (keyboard equivalent: g)
Check this option to enable the grid.

Set Grid Size...
Choose this option to set the size of the grid. A dialog box will appear, allowing you to enter the grid size.

Get Brush Size (keyboard equivalent: [Alt]-g)
Choose this option to set the size of the grid to the same size as the width and height of the current tile-brush.

Guide
Setting a guide show a vertical line every X tiles and a horizontal line every Y tiles on screen. These guides have absolutely no effect on the room itself; they merely provide a visual point of reference. You can toggle the guides on and off by pressing o (or choosing **View|Guide|☐Show Guide**). Guides have two attributes, the guide size, and the guide origin (where the upper left corner of the guide resides).

To set the guide size, use **View|Guide|Set Guide Size** or **View|Guide|Get Brush Size**. The guide size defaults to 16x16 tiles if you don't set it (this is one SNES screenful if you are using 16x16 pixel tiles). To set the guide origin, move the cursor over the tile that you want to use as the guide origin, then press [Shift]-O.

☐Show Guide (keyboard equivalent: o)
Check this option to display the guide.

Set Guide Size...
Choose this option to set the size of the guide. A dialog box will appear, allowing you to enter the guide size.

Get Brush Size (keyboard equivalent: [Alt]-o)
Choose this option to set the size of the guide to the same size as the width and height of the current tile-brush.

☐Spaced Toggle (keyboard equivalent: \)
Check this option to cause a single pixel "spacer" to be drawn between each tile in a room. This makes it easier to see where the tiles are.

☐EditColorsOnly (keyboard equivalent: `[Alt]-e`)
Check this option to cause source rooms be displayed using the last edit room's palette.

Disable
By default, tUME shows the tile priority, flip and colorset settings. You may disable the display of priority, flip, or colorsets through one of the following three options:

☐Priority
Check this option to disable the display of tile priorities.

☐Flip
Check this option to disable the display of flipped tile.

☐Colorsets
Check this option to disable the display of tile colorsets.

☐Scroll Lock
Check this option to prevents tUME from scrolling the room.

Pane
By default, the source pane in a window displays only source rooms (check **View|Pane|❍Only Source**), and the edit pane in a window displays only edit rooms (check **View|Pane|❍Only Edit**). You may change a pane to show both edit and source rooms by checking **View|Pane|❍Allow All**, or lock a pane to show only rooms that are the same type as the current room by checking **View|Pane|❍Only Same**.

❍Allow All (keyboard equivalent: `[Alt]-a`)
Check this option to display both source and edit rooms in the current pane.

❍Only Source
Check this option to display only source rooms in the current pane.

❍Only Edit
Check this option to display only edit rooms in the current pane.

❍Only Same
Check this option to display only rooms of the same type as the currently viewed room in the current pane.

Bkgnd Color
Set the color register to use to drawing NULL tiles.

Next Color (keyboard equivalent: `[Ctrl]-]`)
Choose this option to use the next color register in the palette to drawn NULL tiles.

Prev Color (keyboard equivalent: `[Ctrl]-[`)
Choose this option to use the previous color register in the palette to drawn NULL tiles.

Zero Color (keyboard equivalent: `[Ctrl]-\`)
Choose this option to use color register zero to drawn NULL tiles.

☐ToggleSmartFlip
Check this option to change the behavior of **View|Flip Panes**. Normally, **View|Flip Panes** switches between the edit and source panes. However, when **View|☐ToggleSmartFlip** is active, choosing **View|Flip Panes** in an edit room will find and make visible the source room that with tiles that belong in the edit room's floor layer.

If you have more than one source room whose tiles can appear in the current floor layer, then **Smart Flip** will show the source room that you most recently selected a tile-brush from.

The tileset chosen for a given layer are specified through the tileset user types and are defined in the tUME.INI file; see the **Redefining Layer Types** section of the *tUME Configuration Guide*.

Export Screen...

Choose this option to export the current screen as an IFF picture.

Troubleshooting

tUME says I'm out of memory, and I know I have plenty of memory!

When tUME tells you it has run out of memory, you should choose **Project|About tUME** to see if you are low on main memory or EMS/XMS memory.

If you are running out of EMS/XMS memory, your options are limited. If you are happen to be running tUME under Windows, you may be able to configure Windows to supply more EMS/XMS memory. Otherwise, you'll have to upgrade the amount of memory in your machine.

However, it is more likely that you have run out of main memory. Here are some strategies for maximizing the amount of main memory available to tUME:

1. Use EMS instead of XMS memory. Due to the way tUME deals with EMS/XMS memory, you will typically gain about 64K by switching from XMS to EMS memory (and tUME will run faster as well!)

2. Load your device drivers high to maximize the `largest executable program size` reported when you type `mem` at the DOS prompt. See the manual for your memory manager for more information.

I can't flip (or set the priority of) my tiles!

1. Make sure that **View|Disable|☐Flip** (or **View|Disable|☐Priority**) is not checked.

2. Make sure that the tiles have not been set to a type that cannot be flipped (or prioritized). Please see **Redefining Tileset Types** in the *tUME Configuration Guide*.

I can't select a brush anymore!

1. Are you on the correct floor layer?

2. Currently, tUME only displays the floor layer of the current brush. Thus, if you have selected four layers, only the tiles in the bottommost layer will be shown. Stamp the brush to see which tiles have been selected.

I can't stamp my brush anymore!

You should check the following when you expect to be able to stamp your brush, yet when you stamp with the left mouse button, nothing happens:

1. Make sure that you are not in a brush coloring mode or priority setting mode. Press the `.` (period) key on the numeric keypad.

2. Make sure that the current room is not locked. Choose **Room|Lock** to unlock a locked room.

3. Make sure that the current layer is not locked. Choose **Layer|Lock** to unlock a lock layer.

Why does the word 'COLOR' appear attached to the pointer?

tUME has entered into color setting mode or priority setting mode, most likely through pressing of one of the keys on the numeric keypad. This feature is useful for placing tiles into different colorsets on target machines such as the Super Nintendo or the SEGA Genesis. Please see the **Colorsets** section, above.

My tilesets don't load correctly anymore!

If you are editing your DPaint tileset pictures, and quite mysteriously, tUME stops loading your tilesets properly, chances are you have changed the background color. Start DPaint, load your tileset picture, and set the background color by pressing `,` (comma), then clicking the right mouse button on the background color.

The tileset load formats **Full-Tiled**, **Tiles-Blanks**, **As Brushes**, and **Boxed** are all affected by the background color setting.

The Brush|Count function is not working!

Are you in the right layer? This function matches the number of layers in the tile-brush, starting with the floor layer and continuing with the layers above that.

Are some of the tiles to be matched flipped? The **Brush|Count** function is sensitive to flipped tiles. If some of the tiles are in a different flipped orientation, they will not be counted.

Are some of the tiles to be matched in a different colorset or have a different priority set? You can configure the feature to match flipped tiles, prioritized tiles, and different colorset tiles by changing the `[Search Options]` section of tUME.INI. See **Configuring Search and Replace** section of the *tUME Configuration Guide*.

Are the layers you want to match made visible?

Specifications

Hardware Requirements

IBM PC with 640K of memory, MCGA display, hard disk drive, and Microsoft-compatible mouse.

tUME will utilize additional memory, either EMS 4.0 memory (preferred), or XMS 2.0 memory.

Memory Requirements

Each pixel in a tileset requires one byte to represent, with some additional overhead for each tileset. Thus 1024 8x8 pixel characters would require slightly more than 1024x8x8, or 65536 bytes to represent.

Each tile in a map requires four bytes to represent, with approximately 2K overhead (to store the palette) for each room. Thus to store a 40x25 tile map would require 40x25x4+2K, or approximately 6K, while a 512x512 tile map would require 512x512x4+2K, or approximately 1Mb! Thus to edit a 512x512 tile map, you would need at least 1Mb of free EMS or XMS memory.

Making tUME Run Faster

If you are running tUME under Windows, and tUME runs very slowly (you can see each individual row in your map redraw), Windows is most likely swapping tUME's EMS or XMS memory to disk. This is bad. Try changing tUME's .PIF by selecting the **EMS Memory Locked** check box and the **XMS Memory Locked** check box in the **Advanced Options** dialog box in the .PIF editor to stop windows from swapping EMS or XMS memory to disk.

If you have a 386 or better machine, make sure plenty of EMS memory is available. Under MS-DOS 5.0 or later, you can type **MEM** at the DOS prompt to find out how much EMS and XMS memory is available. If no EMS memory is available, consider reconfiguring some of XMS memory as EMS memory by adding EMM386.SYS to your CONFIG.SYS file (see MS-DOS manual). If you are running tUME under Windows 3.1, use the supplied .PIF file. If you launch tUME from within a DOS box under Windows, make sure EMS memory is available.

Perhaps the least expensive way to increase tUME's operating speed is to upgrade to a fast VGA card. We recommend video cards that incorporate the Tseng ET4000 chip running at zero wait states, such as the Diamond SpeedStar. We do NOT recommend cards based on the S3 chip, such as the Diamond Stealth, as while these card significantly boost Windows performance, their performance with non-Windows applications is abysmal.

If you have a 286 or lesser machine, consider obtaining a 386 or faster machine. If you are purchasing a new machine, consider obtaining one with local-bus video technology. If a new machine is not an option, then consider an EMS memory board. Make sure that the card you purchase supplies expanded memory, not extended.

tUME Limitations

Currently tUME is limited to tiles that are less than or equal to 32768 pixels in size.

Key Assignments

Here are the default key assignments. Note that key assignments may be changed by modifying the tUME.INI file, see the *tUME Configuration Guide*.

Project Menu

`[Alt]-L` ..... **Load...**
`[Alt]-S` ..... **Save...|Normal**
`[Alt]-X`, `q` or `Q` ..... **Quit**
`[F5]` ..... **Show Status|Tiles**
`[F6]` ..... **Show Status|Room Info**
`[F7]` ..... **Show Status|User Info**
`[F9]` ..... **Show Status|Coordinates**
`[F10]` ..... **☐TitleBar**

Tile Menu

`[Alt]-C` ..... **Count**
`[Alt]-H` ..... **Highlight Tile**
`[Alt]-U` ..... **☐Show Tile Usage**
`[Ctrl]-L` ..... **Load...|All Tiled**

Room Menu

`p` ..... **Set Palette**
`[Tab]` ..... **☐Color Cycle**

Layer Menu

`i` ..... **Invis+Lock**
`l` ..... **☐Lock**
`[Alt]-D` ..... **Download|16-color Chars**
`[Alt]-F` ..... **☐EditOnlyFloor**
`[Alt]-↑` or `3` ..... **Move Up**
`[Alt]-↓` or `4` ..... **Move Down**
`[Alt]-[Shift]-↑` .... move to topmost layer (not on menus)
`[Alt]-[Shift]-↓` .... move to bottommost layer (not on menus)
`[Ctrl]-D` ..... **Download|256-color Chars**

Brush Menu

b..... **Select Block**
h..... **Count** (mnemonic "**h**ow many")
s..... **Search|Search**
r..... **Search|Replace**
u..... **Undo**
v..... **Select Pane**
x..... flip brush left to right (not on menus)
X..... **Strip Brush**
y..... flip brush top to bottom (not on menus)
[Ctrl]-S..... **Search|Set Buffer**
[Keypad]-0..... **Set Brush Mode|ReColor**
[Keypad]-. ..... **Set Brush Mode|Normal**
[F1] ..... ❍**Paint**
[F3] ..... ❍**Replace**
[F8] ..... ☐**Hide Cursor**

View Menu

1 or [Alt]-→..... **Next Room**
2 or [Alt]-←..... **Prev Room**
\..... ☐**Spaced Toggle**
<..... **Zoom|Zoom Out**
>..... **Zoom|Zoom In**
g..... **Grid|☐Use Grid**
G..... set grid origin (not on menus)
m..... **Zoom|☐Toggle Zoom**
o..... **Guide|☐Show Guide**
O..... set guide origin (not on menus)
[Spacebar] or j ..... **Flip Panes**
[Alt]-A..... **Pane|❍Allow All**
[Alt]-E..... ☐**EditColorsOnly**
[Alt]-G..... **Grid|Get Brush Size**
[Alt]-O..... **Guide|Get Brush Size**
[Alt]-, ... zoom out maximum (not on menus)
[Alt]-. ..... zoom in maximum (not on menus)
[Ctrl]-[..... **Bkgnd Color|Prev Color**
[Ctrl]-\..... **Bkgnd Color|Zero Color**
[Ctrl]-]..... **Bkgnd Color|Next Color**

Set Colorset Keys

[Keypad]-. ..... disable set colorset mode
[Keypad]-0 ..... restore original colorset
[Keypad]-1 ..... set tiles to colorset 0
[Keypad]-2 ..... set tiles to colorset 1
[Keypad]-3 ..... set tiles to colorset 2
[Keypad]-4 ..... set tiles to colorset 3
[Keypad]-5 ..... set tiles to colorset 4
[Keypad]-6 ..... set tiles to colorset 5
[Keypad]-7 ..... set tiles to colorset 6
[Keypad]-8 ..... set tiles to colorset 7
[Keypad]-+ ..... enable tile priority

Special Keys

a..... "again"; repeat last menu operation
n..... center display over tile under the cursor
[Alt]-P ..... toggle palette to make status bar visible
←..... scroll left
↑..... scroll up
→..... scroll right
↓..... scroll down
[Ctrl]-← ..... scroll left several tiles
[Ctrl]-↑..... scroll up several tiles
[Ctrl]-→ ..... scroll right several tiles
[Ctrl]-↓..... scroll down several tiles
[Ctrl]-[Home] ..... move to the upper-left corner of the room
[Ctrl]-[End] ..... move to the lower-right corner of the room

File Requester Special Keys

[Spacebar] ..... complete filename using highlighted name
[Baksp] on empty line. move to parent directory
\ on empty line..... move to root directory
\..... move into sub-directory
[Enter] ..... enter sub-directory or choose file

Palette Requester Special Keys

b..... **BLEND**
c..... **COPY**
d..... **DELETE**
i..... **INSERT**
s..... **SWAP**
[Spacebar] ..... cancels **COPY**, **SWAP**, **BLEND** and **HSVSPREAD** command
[Enter] ..... leave palette requester and save all changes made to the palette
[Esc] ..... leave palette requester and abandon all changes made to the palette

Importing and Exporting Rooms

To convert a room ("level") saved as an IFF picture into a tUME room, use CUTTILES.EXE. To convert a tUME room to an IFF picture choose **Room|Export...**

To convert artwork from other file formats to IFF file format, or to scale artwork in either axis, or reduce colors, we recommend Handmade Software, Incorporated's Image Alchemy™. Contact HSI voice at (408) 358-1292, or HSI fax at (408) 356-4143, or download a shareware version from the HSI BBS at (408) 356-3297.

Importing Rooms: CUTTILES.EXE

If you have a room saved as a large IFF picture, you can use CUTTILES.EXE to convert it into a tUME room. CUTTILES finds duplicate tiles in the IFF picture, and creates a tUME project file that contains all unique tiles found, and a room that corresponds to the IFF picture.

To use CUTTILES, you need lots of EMS memory. If you don't have EMS memory, you can use XMS, but the program will run much slower. The command-line syntax is:

```
CUTTILES <IFF_picture> <IFF_tiles> {<tUME_map>} {switches}
```

<*IFF_picture*> ..... the input IFF picture to convert to a tUME map
<*IFF_tiles*> ..... the output filename to use to save the IFF picture with all unique tiles
<*tUME_map*> ..... the output filename to use to save the tUME room in

{*switches*} are case-sensitive, and may be one or more of the following:

-W<*width*> ..... create tile that are <*width*> pixels wide (default = 16)
-H<*height*> ..... create tile that are <*height*> pixels high (default = 16)
+M ..... force colors 252..255 to Menu colors (default ON)
+N ..... remap NES colors: 0..3->0..3, 4..7->16..19, ... (default OFF)
+S ..... <*IFF_picture*> is a SNES 16 color picture (default OFF)
+X ..... merge X-flipped tiles when creating <*IFF_tiles*> (default ON)
+Y ..... merge Y-flipped tiles when creating <*IFF_tiles*> (default ON)
+Z ..... merge XY-flipped tiles when creating <*IFF_tiles*> (default ON)

Note that switches preceded with + are turned on with +*switch* and turned off with -*switch*.

Exporting Rooms

To export the current room as an IFF picture choose **Room|Export...**. The following settings affect how the exported image will appear:

- the layers currently visible (choose **Layer|☐Invisible** to change);
- the current **View|☐Toggle Zoom** and **View|☐Show Guide** settings;
- the current **Layer|☐EditOnlyFloor**, **View|☐Spaced Toggle**, and **View|☐EditColorsOnly** settings;
- the current **View|Disable|☐Priority**, **View|Disable|☐Flip**, and **View|Disable|☐Colorsets** settings; and
- the current **View|Background Color** setting.

To export the floor layer in a form that can re-imported back into tUME, use the following settings:

- uncheck **Layer|☐Invisible**;
- uncheck **View|☐Toggle Zoom** and uncheck **View|☐Show Guide**;
- check **Layer|☐EditOnlyFloor** and uncheck **View|☐Spaced Toggle**;
- check **View|Disable|☐Priority** and check **View|Disable|☐Colorsets**;
- set the **View|Background Color** to the same color as the transparent color.

Unfortunately, priority and colorset information do not get re-imported properly by CUTTILES.EXE.

Exporting Rooms: MAP2PIC.EXE

To use MAP2PIC, you need lots of EMS memory (about as much as the size of your tUME map file). If you don't have EMS memory, you can use XMS, but the program will run much slower. The command-line syntax is:

```
MAP2PIC <tUME_map> {switches}
```

<tUME_map> ..... the input tUME map to convert into IFF picture.

{switches} may be one or more of the following:

NOPRI ..... ignore the priority bit when writing the output IFF picture
NOEXT ..... don't add .LBM extension to room names when creating output IFF picture filenames
NES ..... move colors 4,5,6,7 to 16,17,18,19 ...

Since output filenames are the name of each room with the extension .LBM tacked onto the end, you should use **Room|Set Info...** to make sure your room names are valid DOS filenames.

Note that your tUME map file must include either a TMGC or TMGX chunk. This chunk is included when you select **Project|Save...|Save+TMGC** or **Project|Save...|Save+TMGX**.

Glossary

Here are some terms we use while talking about tUME.

Composite Tileset ..... A tileset composed of tiles that are created from other tiles grouped together. E.g., a 16x16 tile created from four 8x8 tiles.

Drag-Select ..... To choose several on-screen objects by placing the mouse pointer at one corner of a group of objects, pressing the mouse button, and while keeping the mouse button depressed, move the mouse to the opposite corner of the group of objects, then releasing the mouse button.

Edit Room..... A room that you created in tUME. You can edit an Edit Room.

Map..... This is what tUME ultimately loads and saves. A map contains one or more **tileset**s and one or more **room**s. **Project** is a synonym for map.

NULL Tile ..... Any position in a room that contains no tiles. Nothing has been stamped at that position. Though most map editors fill a new room with tile #0, tUME fills a new room with NULL tiles. Since tUME can load multiple tilesets, it has no concept of tile #0. Instead it has the NULL tile in the absence of a tile.

Pane ..... Every tUME window has two panes. Each pane may be set to show only certain types of rooms, either source rooms or edit rooms. The default tUME setup shows Source Rooms in one pane and Edit Rooms in the other pane.

Room ..... A Room is a rectangular grid of **tile**s, and in tUME it can also be a certain number of tiles 'deep'. tUME has **source room**s, which is where tiles appear when they are loaded into tUME. tUME also has **edit room**s, which are the rooms you create. An edit room may be a single level in a video game. In addition to being used to represent a video game level or a fantasy role-playing map, tUME edit rooms may also be used to define tile attributes.

Room User Number..... Room User Numbers are usually used for your own personal reference. In your game you may need to reference a particular room. Sometimes you might do this by using the room's name and other times you might find it more useful to reference a room by its Room User Number.

Room User Type..... Every room may have a User Type. Room User Types are used to tell tUMEPack how to interpret a particular room. Some rooms may be converted into levels for a video game. Others may be converted into attribute tables or collision maps.

Select ..... To choose an on-screen object by clicking (pressing and releasing) the mouse button while the mouse pointer is over it.

Source Room ..... A room created to show a **tileset**. You cannot edit a Source Room.

Tile..... A **tile** is the smallest unit of graphics you work with. Tiles are rectangular patches of pixels. Tiles graphic may be literal, where what you see is what will appear in the level, or iconic, where it may represent a monster, an attribute, or something else entirely. A collections of tiles is called a **tileset**. tUME can also create **composite tilesets** that are created from other tilesets.

Tile-Brush..... The tiles that are attached to your mouse pointer that you may use to draw into a room or affect the tiles in a room in various ways.

Tileset ..... A **Tileset** in tUME is a set of graphics images ('**tiles**') loaded from a DPaint file that can be used to create or fill a room.

Tileset User Number..... Every tileset may have a User Number. User Numbers are usually used as a reference for your program or to tell tUMEPack what order to sort your tilesets. See TPNES and M.C. Kids below.

Tileset User Type..... Every tileset may have a User Type. The Tileset User Type is used to tell tUMEPack how to interpret the graphics in a particular tileset. For example, Tileset User Type 0 might tell tUMEPack to convert this tileset into a character font for the SEGA Genesis or the Super Nintendo Entertainment System. Tileset User Type 1 might mean ignore this tileset. Tileset User Type 2 might mean convert these tiles to collision masks. The interpretation of the Tileset User Types is dependent on the particular version of tUMEPack you are using.

tUMEPack ..... An external program that takes the maps you create with tUME and converts them to a data format that is usable in your end product. If you are writing a SNES game then tUMEPack would take your maps and write out files that you could assemble with your SNES assembler. If you are writing a MS-DOS based game then a different version of tUMEPack would convert your maps to something suitable for your MS-DOS game. tUMEPack can also create character fonts, collision tables, collision maps, sprite object lists and many, many other data structures.

Window ..... One view of a room in tUME.

Error Messages

tUME error messages appear both in the status bar and in dialog boxes. Sometimes, two error messages will appear at once (one in the status bar, the other in the dialog box)! In this case, the message in the status bar will generally be more specific, and will reveal more about the nature of the error.

Sometimes your palette will be set such that you will be unable to read an error message (the letters in the status bar are the same color as the background). In these cases, you may not be able to tell that an error has occurred. Pressing `[Alt]-p` will toggle between your palette colors and special colors that make the status bar visible.

Can't add layer to a composite room.
Appears when you try to add a layer to a composite room. Composite source rooms may have only one layer. See **Composite Tiles**.

Can't add layer to a locked room.
Appears when you try to add a layer to a locked room. Make sure the room is unlocked by choosing **Room|Lock**.

Can't add layer to a tileset room.
Appears when you try to add a layer to a source room. Source rooms may have only one layer.

Can't change locked composite room stats.
Appears when you choose **Room|Set Info...** on a locked composite room. You must first unlock the room before you can change the composite room size.

Can't change stats on a tileset room.
Appears when you choose **Room|Set Info...** on a source room. Choose **Tiles|Set Info...** instead to change source room information.

Can't clear a locked room.
Appears when you try to clear a locked room. Make sure the room is unlocked by choosing **Room|Lock**.

Can't count characters.
Appears when you try to count characters. There is not enough memory to complete this operation.

Can't delete a composite room.
Appears when you choose **Room|Delete** on a source composite tile room. You are not allowed to do this. If you want to delete the composite tileset, and all references to the composite tiles, then choose **Tiles|Delete...**. See **Composite Tiles**.

Can't delete a locked room.
Appears when you choose **Room|Delete...** on a locked room. Make sure the room is unlocked by choosing **Room|Lock**.

Can't delete a tileset room.
Appears when you choose **Room|Delete...** on a source room. You are not allowed to do this. If you want to delete the source tileset, and all occurrences of the source tiles, then choose **Tiles|Delete...**. See **Deleting a Tileset**.

Can't delete layer from a composite room.
Appears when you try to delete a layer from a composite room. Composite source rooms must have one layer. See **Composite Tiles**.

Can't delete layer from a locked room.
Appears when you try to delete a layer from a locked room. Make sure the room is unlocked by choosing **Room|Lock**.

Can't delete layer from a tileset room.
Appears when you try to delete a layer from a source room. Source rooms must have one layer.

Can't delete locked layer.
Appears when you try to delete a locked layer. Make sure the layer is unlocked by choosing **Layer|Lock** or pressing `l`.

Can't delete the last layer.
Appears when you try to delete the last layer in a room. Rooms must have at least one layer.

Can't find/make 'tumepack' directory.
Appears when you try to Xave a map. tUME was unable to create the directory to place all the files to Xave. A DOS error may have occurred (e.g., the drive may be full), or you may have entered an invalid DOS path name in the Xave dialog box.

Can't find or make tileset directory.
Appears when you try to Xave a map. tUME was unable to create the directory to save the individual tileset images. A DOS error may have occurred (e.g., the drive may be full), or you may have changed your source tileset filename to an invalid DOS path name.

Can't find target hardware.
Appears when you try to download a room to a target development system. Make sure the development system is connected to the PC, make sure the map downloader program is running on the target system, and make sure the target system is receiving data correctly (you may need to reset the target system). See **Downloading to a Development System**.

Can't find tileset 'picture_name'.
Appears when you try to load a tileset and the file does not exist.

Can't GridRoomAsTiles on a tileset room.
Appears when you try to turn a source room into a composite room. You must first create an edit room, fill it with the tiles you wish to composite, and then choose **Tiles|GridRoomAsTiles...** on your edit room. See **Composite Tiles**.

Can't initialize this room!
Appears when you try to clear a room. tUME ran out of memory while trying to clear this room.

Can't insert layer to a composite room.
Appears when you try to insert a layer to a composite room. Composite source rooms may have only one layer. See **Composite Tiles**.

Can't insert layer to a locked room.
Appears when you try to insert a layer to a locked room. Make sure the room is unlocked by choosing **Room|Lock**.

Can't insert layer to a tileset room.
Appears when you try to insert a layer to a source room. Source rooms may have only one layer.

Can't load layer to a composite room.
Appears when you try to load or append a layer to a composite room. Composite source rooms may have only one layer. See **Composite Tiles**.

Can't load layer to a locked room.
Appears when you try to load or append a layer to a locked room. Make sure the room is unlocked by choosing **Room|Lock**.

Can't load layer to a tileset room.
Appears when you try to load or append a layer to a source room. Source rooms may have only one layer.

Can't load '*tileset*'! Would you like to try a different file?
Appears when tUME cannot find a tileset file. Click **Yes** to specify a different file. See **Configuring Tileset Search Path** section of the *tUME Configuration Guide*.

Can't save a null room.
Appears when you try to save a null room. tUME won't save non-existent rooms.

Can't seem to load map '*filename*'.
Appears when you try to load a map. Most likely, tUME cannot find *filename*.

Can't seem to put this tileset in a room.
Appears after a tileset has been loaded. Most likely, tUME has run out of memory.

Can't seem to save map.
Appears when tUME is unable to save the map. A DOS error may have occurred (e.g., the drive may be full), or you may have entered an invalid DOS path name in the save map dialog box.

Can't seem to save tile images.
Appears when you try to export tiles as brushes, or when you try to Xave a map. A DOS error may have occurred (e.g., the drive may be full), or you may have entered an invalid DOS path name in the save dialog box.

Couldn't create palette file.
Appears when you try to save a palette or palette range. A DOS error may have occurred (e.g., the drive may be full), or you may have entered an invalid DOS path name in the save dialog box.

Couldn't open printer file!
Appears when you try to print a room. The path you have specified on the line '**PrintTo=**' in the group **[Print Maps]** of the tUME.INI file is invalid.

[COLOR MENU] section not found in .INI file.
The **[COLOR MENU]** section is missing from the tUME.INI. Please see *tUME Configuration Guide*.

Color requester not active.
Appears you you try to load/save a palette/palette range and the color requester is not active. Please activate the color requester first.

Composite tile height must be less than or equal to room height.
Appears when you try to make a composite tileset where the tile height of a composite tile is taller than the current room height. Either re-size the room so it is taller, or make your composite tiles less tall.

Composite tile width must be less than or equal to room width.
Appears when you try to make a composite tileset where the tile width of a composite tile is wider than the current room width. Either re-size the room so it is wider, or make your composite tiles less wide.

Downloading disabled.
Appears when you try to download a room to a target development system. Make sure that downloading has been enabled in the tUME.INI file (i.e., there is a line that says '**Enable=1**' in the group **[Download]**). See **Downloading to a Development System**.

Error saving tile image.
Appears when you try to Xave a map. tUME was unable to save the individual tile images as ILBM files. A DOS error has probably occurred (e.g., the drive may be full).

layer types: '=' not found.
A line in the layer types section of tUME.INI does not contain the symbol "=". See **Redefining Layer Types** in the *tUME Configuration Guide*.

layer types: bad syntax.
A line in the layer types section of tUME.INI is not formed properly. See **Redefining Layer Types** in the *tUME Configuration Guide*.

layer types: keyword 'Layer' not found.
A line in the layer types section of tUME.INI does not contain the keyword "`Layer`". See **Redefining Layer Types** in the *tUME Configuration Guide*.

Memory critical, reverting to last display.
Appears when you try to view the next or the previous room. You are dangerously low on memory.

No room exists here.
Appears when you try to copy palettes. You must select a room for tUME to copy the palette to. See **Room Colors**.

No Search Buffer specified.
Appears when you try to search or search and replace without first specifying a Search Buffer. See **Search and Replace**.

No tileset selected for deletion.
Appears when you try to delete a tileset, and you have not selected a tileset to delete. First, make the room displaying the source tileset visible, then select a tile-brush that includes a tile from the tileset you want to delete in the upper left corner of the brush, then choose **Tiles|Delete...**.

No tiles for composite tileset.
Appears when you try to convert a room without any tiles in it into a composite room. You must fill your edit room with the tiles you wish to composite before choosing **Tiles|GridRoomAsTiles...** See **Composite Tiles**.

No tiles selected for setting tileset info.
Appears when you try to set tileset information, and you have not selected a tileset to apply the function to. First, select a tile-brush that includes a tile from the tileset you want to set in the upper left corner of the brush, then choose **Tiles|Set Info...**

Not enough memory to load map.
Appears when you try to load a map. tUME has run out of memory. See **Troubleshooting: tUME says I'm out of memory, and I know I have plenty of memory**.

Out of memory loading tileset.
Appears when you try to load a tileset. tUME has run out of memory.

Please enter a unique room name.
Appears when you are trying to create a composite room. Either you have failed to give your new composite tileset a name (the topmost long box is empty), or the name you have given to your new composite tileset is the same as another source or edit room. Change the name so it is unique. See **Composite Tiles**.

Please select a block first.
Appears when you try to copy palettes. You must first create a tile-brush (press `b` and drag-select some tiles) to indicate to tUME which room to copy the palette from. See **Room Colors**.

Please select a palette range.
Appears when you try to save/load a palette range. You must select a range from the palette first. Note that you may not select a color cycle range.

Range is out of bounds.
Appears when you try to load a palette range. You have specified a invalid initial color number.

Room is already a composite tileset.

Appears when you try to convert a composite room into a composite room. To create a composite tileset made of smaller composite tiles, you must first create an edit room, fill it with the tiles you wish to composite, and then choose **Tiles|GridRoomAsTiles...** on your edit room. See **Composite Tiles**.

Room may only have one layer.

Appears when you try to convert an edit room with several layers into a composite room. You may convert single-layered edit rooms into composite rooms. See **Composite Tiles**.

Search Buffer has different size tile.

Appears when you try to search or search and replace and the Search Buffer contains different size tiles than the current room. See **Search and Replace**.

Tile image is too large.

Appears when you try to load a tileset. The width times height size you have selected is too large for tUME to handle. Consider using a smaller tile size in conjunction with composite tiles.

Trouble allocating new layer.

Appears when you try to add a layer to a room. Most likely, tUME has run out of memory.

Trouble loading tileset.

Appears when you try to load a tileset. Either a DOS error has occurred, or tUME has run out of memory.

Trouble saving picture.

Appears when tUME is unable to save the current screen as an IFF picture. A DOS error may have occurred (e.g., the drive may be full), or you may have entered an invalid DOS path name in the save picture dialog box.

Trouble saving room.

Appears when tUME is unable to save the room. A DOS error may have occurred (e.g., the drive may be full), or you may have entered an invalid DOS path name in the save room dialog box.

Try to load other 'problem' tilesets from here?

tUME is asking if it should add the sub-directory of the last tileset it loaded to the list of sub-directories to search when loading the other tilesets. See **Configuring Tileset Search Path** section of the *tUME Configuration Guide*.

Unable to create room.

tUME has run out of memory while trying to create a new room.

Unable to re-size room.

tUME has run out of memory while trying to re-size the room.

Unable to select block.

Appears when you try to select a tile-brush. tUME has run out of memory.

Unable to set Search Buffer.

tUME has run out of memory while trying to set the Search Buffer.