TRMOD Textile Walkthrough
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This walkthrough will take you step-by-step through how to mod an original Tomb Raider level with a new texture.

If you're modding Tomb Raider II instead, this walkthrough will still be useful. I'll note where the steps diverge in red.

Let's say your favorite level is St. Francis' Folly, but it's always bothered you that one of the gods in the level is Thor, who's obviously Norse, not Greco-Roman. We can mod the level texture to instead read Hephaestus, the Greek forger of Zeus's thunderbolts, and counterpart to Thor. (Crystal Dynamics did the same in the Tomb Raider: Anniversary remake.)

1. Download TRMOD 0.3 from GitHub. Click the green Code dropdown, and then Download Zip.

Link: https://github.com/Aerik72/TRMOD
Tip: Texture replacement was added in release 0.3 of TRMOD, so the earlier Beta releases from the Tomb Raider forums won't support this walkthrough.

2. Unzip the file. This download includes the source code and documentation, but you don't need to compile it yourself.
3. Go to Binaries, which includes already-compiled executables for a few different operating systems.
4. I'm on a 64-bit computer running Windows 10, so I'll open the win64 folder to find TRMOD.exe. We'll use this as our working directory.
5. Next, find a level file to work on. Navigate to your installation folder. I've got the Steam version of Tomb Raider, so I'll open a new File Explorer window and navigate to C:\Program Files (x86)\Steam\steamapps\common\Tomb Raider (I).

Tip: You can also open your Steam library, right-click on Tomb Raider (I), and click Open Folder Location.

6. The level files are stored in the DATA folder, and have .PHD extensions.

Tip: If you're modding Tomb Raider II, the level files will instead have a .TR2 extension. If modding the original Tomb Raider: Gold release of Unfinished Business, they'll be .TUB.
Did you know?: PHD are the initials of one of the original programmers, Paul Howard Douglas.

7. Figure out which level file is St. Francis' Folly. I know it's the fifth level, so in this list, it's probably LEVEL4.PHD, which is the fifth level listed.

Tip: If you're unsure, you can always proceed to "extract textile all" and have a look at the level's textures, which usually make clear which level it is.

8. Before copying the LEVEL4.PHD file to our working directory, make a backup of the original, in case something goes wrong. I copy and paste the file in place, and then rename it from "LEVEL4 - Copy.PHD" to "LEVEL4_orig.PHD".
9. Copy "LEVEL4.PHD" to the win64 directory with "TRMOD.exe".

10. TRMOD is a command-line tool, so we need to open a terminal window. In the Windows 10 File Explorer that's showing the win64 folder, click File > Open Windows PowerShell > Open Windows PowerShell as administrator.

Tip: You can also open the Run bar, and type "cmd" to open a Command Prompt. You'll then have to use "cd" commands to navigate to the folder where you've unzipped TRMOD.

Tip: In most Linux desktop environments, you can right-click on the desktop, and click Open Terminal.

11. First, let's extract the existing texture pages (a.k.a. textiles), to see what we're working with. On the command line, enter ".\trmod LEVEL4.PHD extract textile all", which will write bitmap images of all the texture pages to this directory.

Tip: The ".\" (period backslash) in front of trmod tells Windows "this is an executable, and I want you to execute it".

Tip: On Linux, you'd instead enter "./" (period forward-slash).

Tip: This command also works for level files from Unfinished Business (.TUB or .PHD) and Tomb Raider II (.TR2). It does not currently support PlayStation Tomb Raider levels (.PSX), as the memory structure of textiles and palettes for that format is poorly understood (by me).

12. You should now have a bunch of bitmap files: "palette.bmp", "textile0.bmp", "textile1.bmp", etc.

Tip: TR2 does not use a palette for its 16-bit (default) textures, only its 8-bit (legacy) textures, so if modding that game, you can safely ignore the palette step, and just work with any colors, unless you have a specific need to mod the 8-bit textures.

13. Open "palette.bmp" with any image viewer. Mine opens with the built-in Photos application. It should be a little 64win64 square of random colors. This is the palette of available colors for the textures in this level. We'll need to use these colors when modifying the texture.

Tip: Tomb Raider uses palettes for texture colors to save memory on texture storage. The palette is 256 colors stored in 24 bits-per-pixel, or one byte for red, green, and blue, giving a value of 0-255 for R, G, and B. The textures can then be stored with 8 bits-per-pixel, where each pixel is just an index of a fully-defined color in the palette. For example, the first pixel in a texture might be stored as the byte 55, meaning it is the color in the palette at index 55, where it's a brown shade with color values 100, 80, 78. By accepting the overhead of setting aside memory for a palette, each pixel can be stored with 1 byte instead of 3 bytes. Clever!

14. Now find the original "Thor" texture. I click the navigate right arrow in Photos to look at each texture page. I find Thor on page #3.

Tip: In TR1 and Unfinished Business, transparency is indicated by pure black (0, 0, 0). In TR2, transparency is indicated by pure magenta (255, 0, 255).

Tip: All the textures are lumped into a random jumble on each page. If your level file has been edited by a high-level editor like TRViewer or Tomb Editor, the textures may be lumped differently as a result of those editors fully parsing the level file and re-saving it. TRMOD works at a lower level, only editing the direct bytes in the file that need to be changed. This keeps the levels very close to their original versions, without introducing unintended bugs.

15. Time to edit the texture! I open "textile3.bmp" in my editor of choice, GIMP.

Tip: GIMP is free and freely available for Windows or Linux. You could also edit the texture in Photoshop or even MS Paint in a pinch.

16. It's important to use colors from the palette when editing the texture. I open "palette.bmp" alongside my texture page. When I need a color, I use the eyedropper tool on either the palette or a nearby pixel on the original textile, rather than introducing new colors.

Tip: It's also important to avoid transparency. GIMP has many editing tools like the pencil that have an opacity value that starts at something like 80%. If you use the tool like this, it'll blend your pencil's selected color with the existing pixel's color, giving you a color that is not on the palette. Make sure you set the opacity on your tools to 100%, and the size to 1.00, to edit one pixel at a time.

Tip: In TR2, instead of using a palette and 8 bits per pixel to store textures, the game uses 16 bits per pixel, with some light compression. 1 bit is set aside to indicate transparency, and the other 15 are split with 5 bits for each color channel of red, green, blue. Compressing each color from 8 bits to 5 means you lose a little color depth (number of shades of color), but not using a palette means you can also use a wider array of colors within a level. When working with TR2 textures, I wouldn't worry about color depth — just use whatever colors you like. While compressing the colors, TRMOD may need to round your color by a few shades (up to 4 / 255, proportionally), but it's so little that a human won't be able to tell the difference.

17. After working on the texture for a while, and hopefully finding a way to fit "HEPHAESTUS" into the space formerly occupied by "THOR" (maybe he goes by "Heph" for short?), you're ready to save your new textile. First, save it in your image editor's regular format, in case something goes wrong with the bitmap export. I save the file as "textile3_mod.xcf".

18. Now export it as a 24-bit bitmap. In GIMP, go to File > Export As…

Tip: It's tempting to skip the following steps by going to File > Overwrite textile3.bmp, but in my experience this saves a 32-bit bitmap, which is not compatible with Tomb Raider's 24-bit palette.

Tip: Even for TR2 textures, you still want a 24-bit bitmap image. This gives the full 8 bits each for RGB on input, even if it'll be compressed down to a total of 16 bits internally.

19. At the bottom of the dialog, expand the "Select File Type (By Extension)", and scroll down to the bottom to select "Windows BMP image".

20. I make sure the file name is "textile3_mod.bmp", so I know it's the one I modified. Click Export.

21. *Very important!* On the next pop-up dialog, Export Image as BMP, you must expand Advanced Options and pick the correct bitmap color depth. To match Tomb Raider's palette, select "24 bits: R8 G8 B8". Click Export.

Tip: If you select the wrong bitmap color depth, the "texture replace" operation will fail with an error. Open the textile you saved above in your editor's format (.xcf for GIMP), and re-export the bitmap.

22. Now we're ready to replace the textile in the level file. Make sure your new "textile3_mod.bmp" file is in the same directory as trmod.exe. Then return to your command line window, where we did the "extract textile all" operation before.

23. On the command line, enter ".\trmod LEVEL4.PHD replace textile 3 textile3_mod.bmp". TRMOD will parse your bitmap, check that it's the correct format, and then loop through a pixel at a time, reverse-engineering which palette index represents each color, and writing the new bytes to the level file.

Tip: If any pixels are off-palette, TRMOD will make its best guess for closest palette color, by simply taking the difference between the RGB values and summing them up. The palette color with the smallest difference will be chosen to represent that pixel.

24. While we're here, let's do a quick sanity check that the textile replaced correctly. Run ".\trmod LEVEL4.PHD extract textile 3". Open the freshly-extracted "textile3.bmp", and make sure it's got your texture modifications.

25. Let's give the new level file a whirl! Copy the updated "LEVEL4.PHD" back to your Tomb Raider installation's DATA directory.

Tip: I also save a copy of the new level file, and rename it "LEVEL4_mod.PHD". That way, if I'm not sure whether the in-place "LEVEL4.PHD" is modded or not, I've also got "LEVEL4_mod.PHD" and "LEVEL4_orig.PHD" right next to it, and can copy the appropriate one to the default level file name.

26. Unfortunately, old saves from the original level will not work with the modded one. I want to get to St. Francis' Folly, so my best bet is a save from the end of the previous level, the Tomb of Qualopec. (Sadly, my list of saves is chockablock full of Atlantis and Great Pyramid from my last playthrough.)

27. I download save files from Stella's Tomb Raider Site, picking the Tomb of Qualopec zip, and extracting it to my SAVES folder.

Link: https://tombraiders.net/stella/savegame/TR1saves.html

28. Loading up the last save, I shoot up Larson and proceed through the early sections of St. Francis' Folly until I get to the folly itself.

Tip: If the game crashes when loading the new level, something has gone wrong in writing the new level file. Return to your copy of the original level and try again. If it still won't load, you may have found a bug. Let me know on the forum!

29. Hephaestus! This folly no longer includes a mythological mistake.

Did you know?: A folly is a decorative building, usually evoking an older architectural style. Some examples might be a freestanding decorative clocktower in a park, or a Roman temple to symbolize classical virtues. The Nymphenburg Palace Gardens outside Munich feature several follies, including a Greek temple, a bath house, a pagoda, a hunting lodge, and a faux-ruined grotto.

30. You can share your mod either by sharing the whole level file, or just the textile image for others to install with TRMOD themselves.

PS. Post your new Hephaestus textile to the forums — this one has always bothered me, and I want someone to come up with a nice-looking texture fix. 😁👍