# Raster Troubleshooting Tips & Tricks

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Raster data and tools can be particularly problematic and temperamental. Here are some useful tips and tricks for troubleshooting issues that might arise when using various spatial analyst and raster tools.

1. **Project your Data and Data Frame!** One of the biggest issues and reasons for errors when using raster tools (or any tool) is not having both your individual data sets AND the data frame projected. Everything must be in the same projection. Not only does this accurately calculate your results, but it determines the *units* of the results. If you receive an error that a tool will not run properly, make sure to check this. If your data sets are not projected, use the **Project** tool under Data Management Tools. If your **Data Frame** is not projected, set the projection to match the layers projection.

2. **Do not include spaces or special characters in file or folder names!** Raster analyses are very sensitive to how you name both the rasters themselves and all proceeding folders that they live in.
    a. Raster datasets can not contain any spaces or characters, with the ONLY exception being underscores (_). These datasets are also limited to 13 characters in length.
    b. Additionally, any folder that the raster dataset is in can not contain any spaces or characters (besides underscores _). This is not just for the current folder that holds the dataset, but any **proceedings folders** as well.
        i. Example: H:/<span style="color:red">GIS  Classes</span>/Raster_Analysis – In this example, the space in the 1st folder will also cause an error. All folders in the path must NOT contain any spaces or characters.

3. **Check your available space!** Lack of space is definite reason that raster tools will fail. This is because there is not enough room to save the output dataset. To know if your folder is full, go to **Computer.** If your H drive, or any folder where you're saving the data is full, or **red**, this means that you do not have enough space to run the tools and you must delete some files.

4. **Have a Temp or Scratch folder when doing spatial analysis.** Throughout your analysis, you're going to experiment with different settings – e.g. Examining various radiuses or changing the cell size of your density raster. Rather than saving all these versions in your permanent folder, save them to your temp folder (in your project folder), and give each test sequential names – e.g. "housingdensity1," "housingdensity2," "housingdensity3," etc. When you have decided on the final settings, delete the temp folder with all the trials. This will ensure you are not wasting space.

5. **When all else fails, run the tool *without* changing the default "Output Location".** This will troubleshoot if it is an error with space, how you are trying to save the name, or how you are trying to run the tool.
    a. If the tool works without changing the output location, this means that you are likely out of space OR there is an issue with how or where you are trying to save the new file.
    b. If the tool does NOT work without changing the default output location, this means that there is an error with the parameters of the tool OR your data is not properly projected.

Remember, rasters tools are tricky and there are many minor reasons why a tool might fail. Follow the above tips, and you will likely have a better outcome using raster tools.