



# MaterialMAP from TerraSim®

Classify imagery into a surface material map for mobility and sensor simulation

MaterialMAP is a low-cost, stand-alone application that creates surface material maps from imagery, while simultaneously understanding the unique attribution requirements for multiple modeling and simulation runtimes. These material maps can be used in simulation runtimes to determine entity mobility and routing, runtime visual effects, and sensor simulation.

## Key Features:

- » Import imagery in standard formats, including ECW, GeoTIFF, JPEG, and PNG
- » Support color and multispectral image classification
- » Create sample classifications and reuse spectral class properties with new imagery
- » Develop alternative classification strategies and rapidly visualize intermediate classification results
- » Use MaterialMAP's processing history to select the best classification results
- » Export classified imagery to vector and image formats, including ESRI Shapefile, GeoTIFF, PNG, and JPEG
- » Export material maps for constructive simulations (OneSAF OTF, JointSAF CTDB) and serious game runtimes (VBS2, Steel Beasts, Havok Vision Engine)

## How Do I Use MaterialMAP?

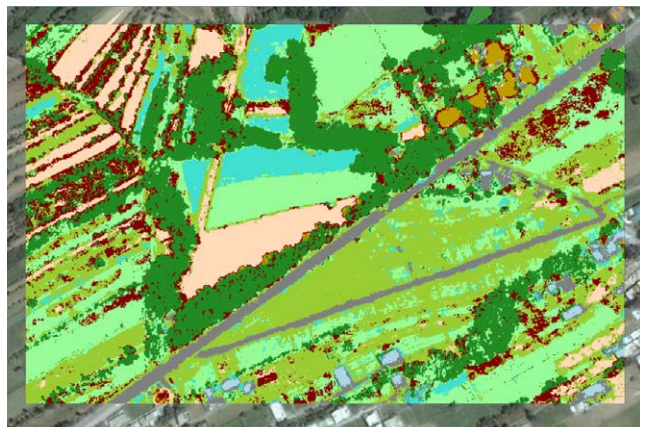
- » Interactively create training samples for surface materials visible in the imagery
- » Compute advanced spectral signatures from material training samples
- » Test material classification robustness using multiple sub-regions of the imagery
- » Automatically classify the entire image using advanced spectral signatures to create a complete surface material map
- » Export to simulation runtime formats

## Why MaterialMAP?

- » Rapidly create realistic warfighter training simulations with accurate surface material and sensor support
- » Easily export to GIS formats; integrate with sensor simulations using pixel-level materials or material-encoded textures
- » Advanced material classification processing
  - Smooth - Reduce image noise
  - Generalize - Eliminate small regions
  - Aggregate - Combine class maps



*Interactively create simple training samples for classification*



*Rapidly produce surface material classifications*



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Input satellite imagery into MaterialMAP

The screenshot displays the MaterialMAP software interface. On the left, a satellite image of a residential and agricultural area is shown. On the right, there are two main panels:

- Feature Manager:** A table listing classification classes with their names, colors, and statistics.
 

| Enable                   | Class Name     | Color | Sampl... | F  |
|--------------------------|----------------|-------|----------|----|
| <input type="checkbox"/> | Low Grasslands |       | 15       | 12 |
| <input type="checkbox"/> | Clay_Dirt      |       | 7        | 15 |
| <input type="checkbox"/> | Crop 3         |       | 14       | 18 |
| <input type="checkbox"/> | Crop 2         |       | 11       | 46 |
| <input type="checkbox"/> | Crop 1         |       | 11       | 53 |
| <input type="checkbox"/> | Canopy         |       | 8        | 18 |
| <input type="checkbox"/> | Road_Asphalt   |       | 43       | 20 |
| <input type="checkbox"/> | Tin_Roofs      |       | 45       | 10 |
| <input type="checkbox"/> | Tile_Roofs     |       | 24       | 53 |
- Classified Layer Properties:** A panel showing the properties of the current layer, including a class list and image information.
 

| ClassList |                |
|-----------|----------------|
| Name      | gnmlkhd        |
| Class     | Low Grasslands |
| Class     | Clay_Dirt      |
| Class     | Crop 3         |
| Class     | Crop 2         |
| Class     | Crop 1         |
| Class     | Canopy         |
| Class     | Road_Asphalt   |
| Class     | Tin_Roofs      |
| Class     | Tile_Roofs     |

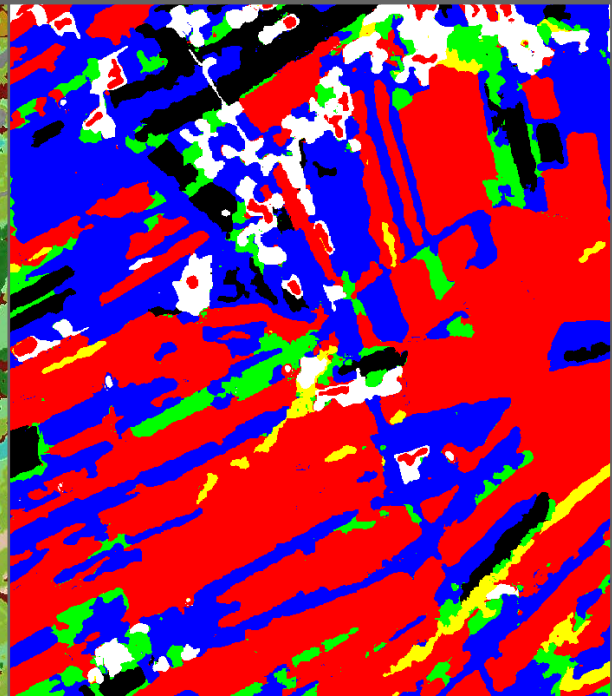
  

| ImageInfo |   |
|-----------|---|
| ImageType |   |
| BandCount | 3 |
| Band      | 0 |
| Band      | 1 |
| Band      | 2 |

Output material classifications



Create runtime material maps



Source Data Preparation