



## What's New in TNTmips 2008?

# Geospatial Modeling Language (SML)

Several MicroImages clients are currently carrying out major analysis projects that use a combination of interactive and batch SML scripts with geodata preparation by TNTmips and access via TNTserver. Since their activities and the SML scripts they write are proprietary, the scripts cannot be documented here in detail. These SML-based projects include, among others:

- a major U.S. company's large-scale, multistate, near real-time monitoring of agricultural crop conditions for the spatial management of its service fleet and other assets;
- large-scale, near real-time truck fleet management systems in the Asia-Pacific region;
- commercial-scale production image analysis for product creation and sales in Europe.

In order to optimally achieve their goals, these SML development projects required access to new 2008 product features and alterations (e.g. pipeline processing, improved display speed, in-line filtering, interactive functionality, ...). It is MicroImages' custom to expand SML and support script development efforts in the TNTmips release version (e.g. in 2007:73) as long and as much as possible via weekly updates. However, some requested new features can only be implemented in the development version (e.g. in 2008:74) because these new features depend on or require low-level changes in internal TNTmips program code. Such new features become available in the weekly update of the TNTmips development version, where you can take advantage of them in your scripts. The comprehensive SML projects noted above were implemented concurrently with the development of 2008:74. The project developers requested several new technical features in SML that were implemented by MicroImages and tested and refined in production environments.

MicroImages has tested and modified all of its sample scripts to insure their operation in version 2008:74. Some of these scripts have been modified and streamlined to use new 2008 capabilities. These include complex sample tool scripts such as the one illustrated on the reverse of this page, the interactive strike/dip script that is being used by clients in geological mapping and which has several new advanced features.

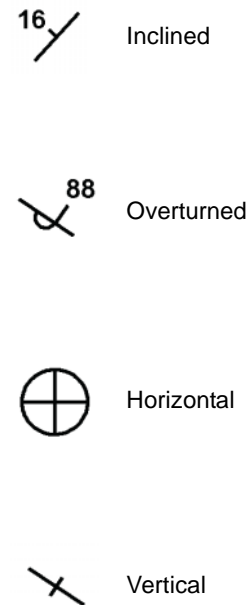
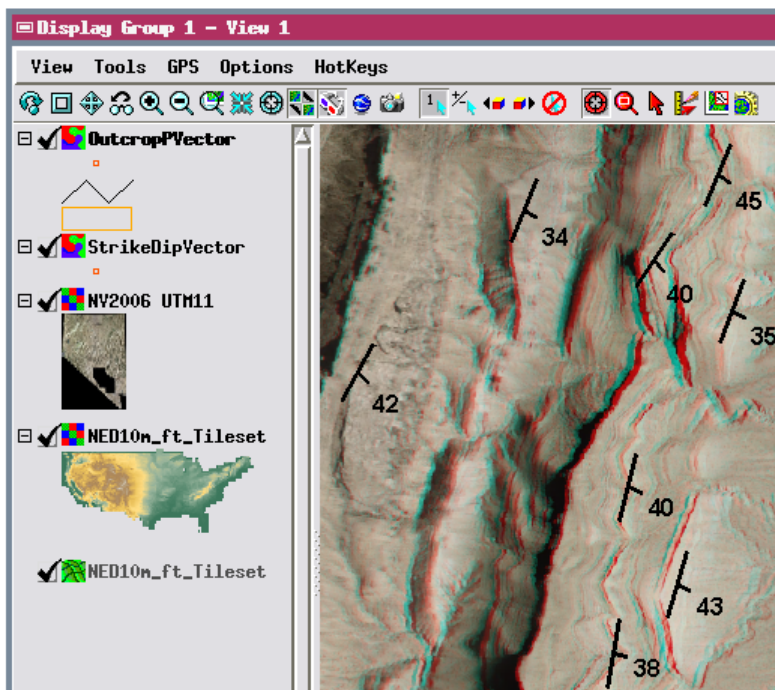
A selection of new classes were added to SML, including classes that make all of the TNTmips pipeline architecture for streamlined raster image processing available in SML. A number of Technical Guides have been prepared to document pipeline programming techniques and the new pipeline sample scripts. Several existing sample scripts were also modified to use the new pipeline classes to improve processing efficiency and to serve as additional pipeline script examples.

Other SML changes include new functions and new methods (class functions) added to some existing classes. These are features such as interface methods to access linked databases, a method to determine the element type (2D or 3D) of a geometric object, and a method to move a point a specified distance and direction. (over)



Hundreds more of these kinds of utility modifications have been added to support the creation of large production-oriented scripts. The following are some of the additions whose uses are more obvious.

- Use multiresolution image fusion.
- Apply contrast tables.
- Generate DataTips by script.
- Construct and send e-mail messages.
- Use regions in pipeline to crop and mask images.



The Strike/Dip Tool Script (StrikeDipTool73.sml) provides an interactive tool to geologists to use with a digital elevation raster (DEM) and image overlay to quickly measure and record the orientation of rock layers and other geologic structures. The image and DEM used with the tool can be large TNT tilesets as in the illustration above, which shows a detail from a 1-meter natural color orthoimage mosaic covering the entire U.S. State of Nevada and uses a 10-meter DEM tileset covering the conterminous United States as the elevation reference layer. The image overlay can also be displayed in anaglyph stereo (as shown) to enhance the interpretation of terrain features. This script was improved in several ways after the initial release of 2007:73. The CartoScript used to render the strike/dip symbols (see examples in the illustration above) is now embedded in the Tool Script and saved automatically with the StrikeDip vector object produced. The DEM used can have any projected map coordinate system or geographic (latitude/longitude) coordinates, and its elevation values can be in any unit (meters, decimeters, feet, ...).

