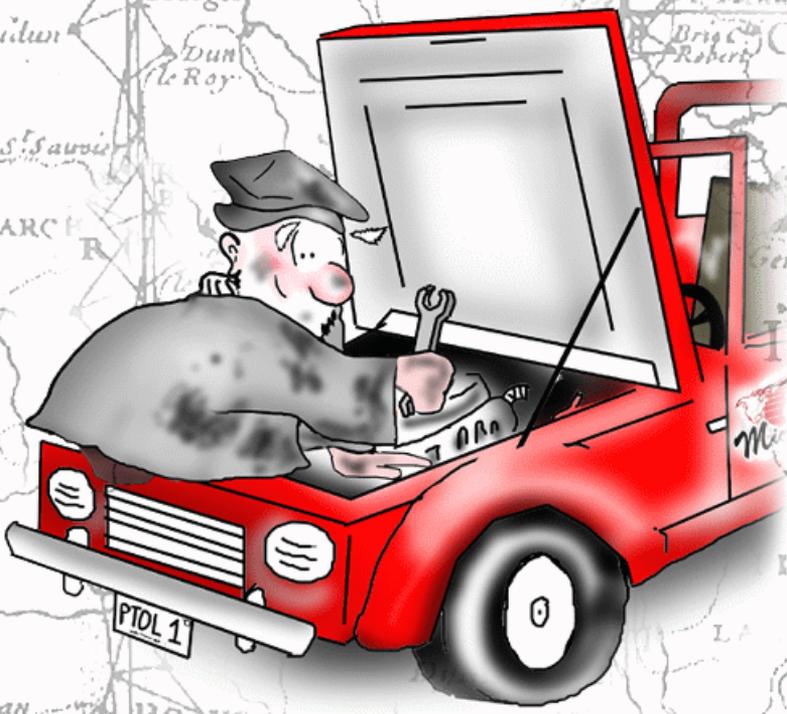


Introduction to

# Technical Characteristics



of the  
**TNT Products**

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## Nobody Else Can Match Us

This booklet surveys some of the technical characteristics that separate the MicroImages TNT products from all competing products. After all the speed tests have been run, and after all the feature lists have been checked, these technical characteristics will distinguish the TNT products from the rest. Consider how these technical characteristics are important for your professional applications. When you realize that no other software in the industry can match these features, the TNT products will become your clear favorites.

**You Need Facts** This booklet assumes that you are a professional who is evaluating software for applications in geospatial analysis, desktop cartography, image processing, and GIS. You have a clear idea of your professional task, and you want more information about how the software you choose will affect the way you accomplish your work. You know that some software makes you redefine your task to settle for something the software can do. This booklet shows how the TNT products are built to be robust, stable, and flexible, so when you see your task is covered by the TNT feature set, you can safely conclude that TNT is your best choice.

**Get More Information** This booklet is intended only as an introductory survey of some key technical characteristics of the TNT products. The purchase of a professional system for geospatial data analysis is a major undertaking. Talk to other MicroImages clients. Discuss your project needs with a TNT products authorized reseller, who is a professional engaged in production work just as you are. Contact MicroImages directly and get all of your questions answered by one of our client support specialists.

**Try Before You Buy** MicroImages is the only company in the industry to offer a completely free, full-featured version of its professional product that you can evaluate and use for as long as you like. Download or order the free TNTlite and use the accompanying tutorial booklets to learn TNTmips. If you decide to purchase the professional version you will get a software license key, which removes TNTlite limits on object size.

*Keith Ghormley, 1 April 2005*

You can print or read this booklet in color from MicroImages' web site. The Web site is also your source for the newest tutorial booklets on other topics. You can download an installation guide, sample data, and the latest version of TNTlite:

**<http://www.microimages.com>**

## Windows, Mac OS X, and Linux/UNIX

platform of your choice

Since the TNT products are available for all popular computers you can use the computers you already own — no new purchases are required. You never need to give up your computer just for a new piece of software.

mixed shop

You can let everyone on the project team use the computer they already have. The TNT products coexist perfectly, sharing work on many kinds of computers.

inter-departmental  
flexibility

Your project group need never exclude users who have different kinds of computers. You lose none of the time that your team has already invested in other existing software and data.

any computer, any OS

Windows, Mac OS X, and UNIX (including Linux, and Sun Solaris). All versions are compiled from the same TNT source code, so all versions have exactly the same features

cross-platform geodata  
Project File format

Never run another conversion routine. You can move your TNT Project Files from platform to platform without conversion of any kind.

64 Mb RAM adequate

Efficient coding by the MicroImages software engineers means that the TNT products can run easily on computers with as little as 64 Mb of RAM.

What kind of computers do you have? If you ask about the software from some companies, you have to stop before you get started, because they provide their full-featured professional software for just one kind of computer. But the TNT Products are all available for all types of computers. What's more, there is no difference of any kind in the features each version offers. The MicroImages software engineers develop exactly one set of source code, which is compiled in turn for each type of computer platform. No other company offers a single product that is the same on every type of computer.

## One Interface, All Features

identical interface on all  
platforms

The TNT Products retain a uniform appearance and behavior on every platform. The native graphical interface on each platform makes the TNT products feel "at home" in the host system.

MI/X for Windows

Underneath the interface, the TNT products use the X Window System. X is standard on UNIX computers. Mac OS X uses Apple's X11. For Windows, MicroImages includes MI/X, the MicroImages X Server.

identical features on all  
platforms

Developing for X on all platforms, MicroImages can maintain a single set of program code, which ensures that the version for every type of computer always has exactly the same feature set.

ToolTips and icon buttons

Helpful point-and-click interface elements make it easy to learn the TNT products. Colorful icon buttons provide easy access to program features. ToolTips quickly identify icon functions.

no command line

No blank command line waits for you to type in a properly constructed, complex command. All processes run from menus and icons, with supporting dialog boxes for process options.

no missing modules

One price includes all the features. There are no add-on costs for missing modules. Get all the TNT features for one price.

Any software that makes you stop and learn a new interface when you move to a different computer is making you waste expensive time. The TNT products all use a graphical interface that is identical on every type of computer. The windows, menus, icons, and buttons that you see on a UNIX computer work exactly the same as those that you see on a Windows or Macintosh computer. Every interface component and feature is identical.

## Universal Geodata File Format

unique TNT Project File	One unified data structure, the Project File, holds all your geodata objects: raster, vector, CAD, TIN, database, region, SML script, text, and their supporting subobjects.
no arbitrary size limits	Your Project File can be as large as your OS and media allow. Thus you can use rasters of practically any dimension, and vectors with practically any number of nodes, lines, and polygons. No TNT user has ever hit a size limit.
no conversion between products and computers	Never run another conversion routine. You can move your TNT Project Files from platform to platform without conversion of any kind. And the Project Files that work in TNTview are identical to those that work in TNTmips, TNTedit, and TNTatlas. You face no conversion considerations of any kind. Ever.
local and network access	File and object selection treats local and network drives the same way. You can combine objects from a network file server with objects on your local drive.
hierarchical organization	You can create nested folders within each Project File to organize your project materials. The Project File automatically keeps all associated subobjects with each parent object.

A TNT Project File can hold all of the geodata for one or more projects. It holds geospatial objects of various types: raster, vector, CAD, TIN, database, region, and script. The Project File can be as large as the storage on your computer. The TNT products automatically create and maintain subobjects for each object, such as georeference, display, and style controls. Objects and their associated attributes are always automatically kept together, not in separate files.

But the TNT Project File distinguishes itself beyond that. The TNT Project File is completely and transparently portable across all computer types. All cross-platform file issues are handled automatically and transparently by the standard TNT file access routines.

## Real Geodata Integration

### diverse geodata sources and types

Geodata comes from many sources and in many data types. Import processes let you bring in geodata from virtually any source and in all common geodata formats.

### geodata organization

The TNT products all use the unique Project File data structure, which accommodates massive geodata objects of all types. The Project File accommodates every object type and imposes essentially no limits on size. The unified Project File structure makes coordinating your project materials as easy as possible.

### geodata combination

Display, editing, and analysis processes let you use objects of different types together without difficulty. Use raster, vector, CAD, TIN, region, and database geodata in all kinds of combinations. Merge, mosaic, intersect, extract, process, filter, interpret, warp, convert ... TNTmips gives you many ways to integrate your geodata. The flexible Project File design makes it easy for MicroImages to enhance the TNT products in every release with new processes for combining and analyzing geodata of different types.

### geodata conversion

When you have geodata of one type that you need to manipulate as another type, you will be thankful for the multiple object conversion routines TNTmips offers. If there is a type of conversion that has been conceived, chances are you will find it already on one of the TNTmips process menus.

The real power of geospatial analysis is applied when you use different kinds of geodata in new combinations. The real difficulty of geospatial analysis in many systems is figuring out a way to make different kinds of geodata work together at all. But in the TNT products, special care has been taken to provide ways to use different kinds of data together and ways to convert one type of geodata to another. TNT gives you real integration for all kinds of geodata.

## Geoattributes

- easy attachment** Simple import and linking procedures let you bring in databases of all kinds, such as dBase and ODBC. Then use coordinate fields or primary key fields to relate the database records to geospatial elements in other object types.
- multiple relations** One table can be related to any number of geospatial objects. One geospatial element can be related to any number of tables. And of course any number of tables can be related to one another in a complex chain of relations. A powerful graphical relations window lets you drag table graphics and draw relational links with the mouse.
- query-based selection and styles** Use the geoattributes in any number of related tables in queries that control element selection for display and processing. And use the geoattributes to vary display styles according to field values. Line color, style, and width; point symbol size, and orientation; polygon fill pattern and border color; all can be controlled by geoattribute values. Sophisticated theme mapping can automatically assign a spread of display styles according to the statistical distribution of geoattributes in an entire table.
- computed fields** You can extend the reach of your geoattributes by defining new dynamically computed fields. Apply math, string, and logic functions to multiple, existing fields to create computed fields for many uses.

Large collections of data are available that can enable and enrich your mapping and geospatial analysis tasks. There is no end to the kinds of database information that you want to associate with and access from the geospatial objects in your project materials. In the TNT products you can easily attach multiple related tables to geospatial elements in raster, vector, CAD, and TIN objects. Then all of the information in the associated tables can be used for display, selection and analysis tasks of all kinds.

## Industrial-Strength Geodata Objects

### raster data types

binary, 4-bit, 8-bit color, 8-bit integer (signed or unsigned), 16-bit composite, 16-bit integer (signed or unsigned), 24-bit composite or integer, 32-bit integer or floating point, 64-bit integer or floating point, 128 bit complex (real and imaginary components)

### no size limits

The only likely limit you will encounter is the size of your storage media. The only actual limit of TNT Project File size is imposed by the size of the files your operating system can handle in its file allocation system. And as soon as the architecture of the operating systems and the C programming language is extended for even larger file and object sizes, the TNT products will be right there, making sure “too big” is never your problem.

### long names and descriptions

TNT Project File names can be as long as your OS allows. In addition, the TNT file selection routines show a 60-character description with each file, object, and subobject name where you can keep meaningful date, source, and project information. No more guessing where some cryptically named file or object came from.

Many scientific and professional computer users know the sickening feeling of finding the design limits of their software: the system can't save the file, or the address is out of range, or the system just hangs. But in the TNT products, size limits are not part of the design. The TNT geodata objects have been designed to be robust and extendable. Raster, vector, CAD, TIN, and database objects have virtually no size limits and are intended to accommodate the most demanding professional and scientific data efficiently. Raster cells can hold 1-bit, 4-bit, 8-bit, 16-bit, 24-bit, 32-bit, 64-bit, and 128-bit data in integer, floating point, and complex numbers. Vectors objects are limited in size only by the operating system itself. No MicroImages client has ever reported coming up against the design limits of TNT.

## Network Ready

### cross-platform sharing

Windows 98/ME/XP/2000, Mac OS X, and UNIX (including Linux, AIX, Solaris, and IRIX): the TNT products can live on all the machines in your network with no extra fuss. You never have to run a conversion routine to prepare a Project File from one computer for someone who is using a different type. You can share your TNT Project Files across a multi-platform network.

### remote or local execution

Since all versions of the TNT products use the X Window System, it is easy to configure X Servers on your network for any mix of remote and local execution. You can use multiple X terminals against one remote computer that executes the TNT processes.

### flexible license support

MicroImages offers TNT floating license support so that many users on a network can run the TNT products against a single networked hardware key. The license manager permits as many simultaneous users as the key authorizes.

### share networked peripherals

Use the TNT products across a network to share expensive peripherals, such as large-format color printers. If your network enables device sharing, your TNT product can take advantage immediately.

Your computer is on a network. You share a printer, use common files, and send messages to others in your organization. The TNT products are one hundred percent network friendly. They can share printers with the rest of the network without disturbing other applications. They can share TNT Project Files, whether enabled on a peer machine or located on a central file server. TNT can run happily on a small local network consisting of a few machines, or a network as large as your entire organization.

File safety is guaranteed by automatic TNT Project File routines that protect a Project File from other access as soon as one user opens it. Thus, there is no danger of data scrambling by simultaneous write operations from concurrent users. And of course as soon as the first user finishes, the Project File is immediately made available for other use.

## Import/Export - Input/Output

**import or link** The TNT products lead the industry in the number of import formats for raster, vector, CAD, TIN, and database files. TNT imports all the associated geoattributes automatically. You may prefer to create dynamic links to external files in some formats so that other programs can continue to access the data, and so that you need not copy very large geodata.

**export formats** When you need to make your project materials available to those with other systems, you will find the formats you need among the many export formats TNT offers. The export processes automatically include all associated geoattributes, for those external formats that have structures to accommodate them.

**input and output devices** Not only does TNT work with just about any kind of input and output hardware that you can plug in to your computer, but you can also access hardware attached elsewhere on your network. If you don't have special output devices, such as large format color printers, TNT can prepare print files for a service bureau.

**publish with free TNTatlas** Export and output simultaneously by publishing large geodata stacks on CD-ROM. You can include the free TNTatlas viewing software on your published CD's.

Some systems make you spend precious time looking for conversion utilities so you can translate the external data that you want into a format that the system will accept. How nice that TNTmips offers import and export routines for every common geodata format — and for some not-so-common formats, too.

If you want to collect geodata rather than import it, you can use virtually any suitable input hardware: video framegrabbing, x-y digitizers, GPS recorders, scanners... if it plugs into your computer, TNTmips can probably use it. Likewise, output devices of all types are supported: film recorders, printers, plotters; you can even interface to controls for specialty devices, from lab instruments to variable-rate agricultural equipment.

## Advanced Geospatial Data Display

multiple views	Open as many simultaneous multi-layer view windows as you want and spread them across multiple screens. TNT lets you geolink views together so that scrolling in one window moves the view in geolinked windows. Live GPS input is shown by a crosshair that automatically scrolls the view when it gets to the edge of the window.
color mode reconciliation	8-bit, 16-bit, and 24-bit color rasters are displayed with automatic conversion and optimization. Thus, 24-bit color is rendered quickly even if you have older 8-bit display hardware.
map projections on-the-fly	The display processes automatically reconcile all map projections on-the-fly. Choose from quick affine approximation for most circumstances, or more rigorous exact re-projection displays.
3D perspective, stereo, and flybys	Integrated 3D perspective views appear in side-by-side windows with linked viewpoint controls on the 2D view. 3D stereo visualization is supported for a selection of special glasses and hardware. Draw curved paths for animated fly-throughs and create MPEG output to distribute the result. You can also export 3D surface objects to VRML format and use one of the freely available VRML viewers for other 3D visualization.

Advanced geospatial visualization: TNT display processes let you visualize your geodata as everything from simple one-layer 2D views to complex multi-layer 3D animated fly-bys. You can use transparent layers and style by attribute; you can open multiple geo-linked view windows and apply dynamic 3D perspective rotation tools. The display process automatically mosaics selected objects, automatically reconciles different map projections and coordinate systems, and automatically handles all color-model and color-depth conversions. Then it is easy to add map grids, tick marks, neat lines, legends, and map scalebars.

## Multi-Object Geodata Editor

multi-view,  
multi-layer editor

When you edit geospatial data in TNTmips and TNTedit, you can use all the multi-view and multi-layer features familiar to you from the geospatial display process. Use any combination of editable and reference layers. You can move them forward and backward in the drawing order, adjust transparency effects, and toggle layer display on and off.

automatic topology

Vector topology is maintained automatically. For example, when you draw a line element that crosses another, the process automatically creates a node at the intersection and updates all line, point, and polygon relations. Your topology never falls behind.

direct editing of coverage,  
E00, and shapefile

You can load and save external coverage, shapefile, and E00 files as you would any other vector object. Thus you can quickly display external vectors over a large raster object or other multi-layer reference image and apply the TNT editing tools as usual. All your changes can be saved directly to the external file formats.

create styles  
and symbols

You can create special point symbols, line patterns, and fill patterns with the integrated style editor. Base your designs on existing styles in the large symbol library that comes with TNT, import symbols from other sources, or use the drawing tools to create your own from scratch.

One integrated editor provides tools for multi-object, multi-layer editing. You can open any number of raster, vector, CAD, and TIN layers for editing, and have any number of additional layers displayed for visual reference. When you move from layer to layer, the editor automatically opens the tool palette for the selected object type. All map projections, scales, and orientations are reconciled automatically, and new objects can automatically take their georeference from any other layer. You can even edit external geodata objects such as TIFF rasters and E00 vectors.

## Map and Poster Layout

### WYSIWYG composition

You can create multi-object print layouts easily, using all the layer, selection, and style tools of the geospatial display process. Use geoattributes to determine size, rotation, color, and style. Position elements on the page interactively. Of course TNT automatically reconciles all matters of map projection, data type, scale and rotation so you need not interrupt your work to go back and pre-process component objects.

### local language and fonts

Select any TrueType font for annotation, labels, and legend text. The TNT products all support the 2-byte UNICODE standard, so your maps can be presented in any language, such as Chinese, Japanese, Thai, and Arabic. Since TNT's internal geoattribute tables also support 2-byte UNICODE, your automatic labels can also appear in any language and font.

### print to scale

Create map products to exact scale. Just specify, for example, that you want the printed map to have a scale of 1:24,000, and the layout process automatically adjusts the display to let you work with the layout elements at their correct relative size and position.

### special cartographic elements

Cartoscripts let you define precise symbols and lines for specialized applications. Automatic labeling quickly labels hundreds of elements, positioning labels and resolving label collisions.

Map and poster layout features let you design professional large-format color products. Print to large-format color printers, print multi-page projects on a small-format printer, or print to a Postscript or TIFF file for a service bureau. All the map elements you need are easy to add: grid lines, tick marks, neatlines, scale bars, legends, north arrows, logos... all generated easily and positioned with WYSIWYG layout tools. You can make exact adjustments for the type of printer, paper, and ink you have by printing automatic test strips to find the best combination of controls including contrast, saturation, and dither patterns.

## Geospatial Analysis

image processes	Raster processes include basic image processing, such as image filtering, enhancement, and contrast and color manipulations. Multispectral raster objects can be processed for vegetation indices and other standard transformations and combinations. Hyperspectral processes treat “hypercube” raster sets that have hundreds of spectral bands.
surface processes	Elevation surfaces (whether raster, vector, or TIN) can be used to correct image distortion, as in the DEM and orthoimage process, or in surface property analysis, as in flow path, watershed, viewshed, volume calculation, contour analysis, and slope, aspect, and relief shading.
vector processes	Topological vector objects offer many possibilities for geospatial analysis. Network and routing analysis, along with buffer zones, and many kinds of merging, combining, and extraction operations.
synthetic processing	Complex and synthetic processes use various combinations of raster, vector CAD, TIN, and database objects. The geoattributes from each object type can be used to derive new geospatial information by logical relations and operations.

The TNT products have a long history of geospatial data processing and analysis. TNT does everything from multi-spectral raster processing, to topological vector combinations, to CAD, TIN, and database manipulations, and all kinds of things in between. Stereo-to-DEM and orthoimage processing, hyperspectral analysis, complete surface modeling, surface generation, contour generation, volume, slope, aspect, shaded relief, flowpath, viewshed, and watershed. Combinations for mosaic, merge, buffer zones, extraction, filtering, route finding and network analysis. Image processing, analysis, and enhancement; custom processing with SML, interactive analysis with Feature Mapping, dynamic combinations with GeoFormulas... each feature broadens the foundation for even more features so that the more capability MicroImages adds, the more new possibilities emerge.

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## Localization

### language of your choice

MicroImages provides the TNT products to a growing number of international users. While many international computer professionals are accustomed to software that presents English interface elements, mapping professionals must be able to produce map products in the language of those who need to use the map. The TNT products can be localized so that interface text, messages, documentation, output text, map annotations, labels, and database fields all appear in the language and alphabet of the locale.

### locale files

MicroImages keeps all interface text in a unique locale file. The text in that file can be translated into any language using any font and character encoding. Once the locale file has been translated, the TNT products present all interface elements in the language of the locale.

### update utilities

Locale files can be translated by TNT product resellers, service providers, independent users... anyone who has an interest in seeing the TNT products localized. MicroImages provides update utilities to make it easier to keep a localization up to date as new versions of the TNT products are released. The latest locale files are always posted at [www.microimages.com/i18n/locales/](http://www.microimages.com/i18n/locales/).

MicroImages has implemented fundamental design structures in the TNT products to make sure they can be fully localized for any language and locale. Of primary importance is full 2-byte font and character encoding support throughout TNT. All interface text can be translated into 2-byte characters, to support any language and alphabet in the world, including Chinese and Japanese. Output and annotation text can likewise use 2-byte characters. Even geoattribute fields in the internal TNT database tables can use 2-byte characters so automatic labels generated by queries on geoattributes can display in the language of the locale. The growing list of available locales can be seen at [www.microimages.com/i18n/locales/](http://www.microimages.com/i18n/locales/).

## Customization Features

### SML scripts, Tool Scripts, and Macro Scripts

The simplest way to add custom processes to TNTmips is by writing scripts in TNT's geospatial scripting language (SML). SML offers the constructs common to most programming languages and gives you access to a library of functions that let you manipulate TNT Project File objects and subobjects. Pushbutton Tool and Macro scripts let you add unique functions to the display process.

### SML APPLIDATs

You can create special combinations of SML scripts and bundled geodata for distribution to targeted user groups. The APPLIDAT runs its SML script automatically and accesses its Project File objects without requiring the user to select them.

### GeoFormula display layers

A GeoFormula is a dynamic display layer that combines multiple geodata objects on the fly. GeoFormulas are written with SML constructs and can be treated as virtual display objects.

### Cartoscript styles

Sometimes you need a line style that can't be described with the TNT style editor. A Cartoscript is a "style by script" specification that can draw complex line styles and symbology based on geoattributes.

### TNTsdk for developers

The ultimate way to customize the TNT products is to take the developer's route: write your own C code and access the thousands of TNT library functions.

You can shape the TNT products to any special circumstances and processing needs with a selection of customization features. SML gives you the ability to write custom processing scripts and post them on menus and custom toolbars. You can create dynamic GeoFormulas that define on-the-fly combinations of multiple objects for display layers. You can package custom SML scripts with pre-selected geodata in order to distribute APPLIDATs to your specialized user community. You can even sit down and write your own C code, invoking thousands of TNT library functions with the developer's TNTsdk.

## Regular Upgrades

frequent and regular

MicroImages clients never wait long for a new version of the TNT products. MicroImages releases a new version twice every year; so new features and updates are never more than a few months away. No other software developer in any part of the industry has matched the development schedule that MicroImages has kept: with 55 releases from V0.9 in 1986 to V7.0 in 2004.

accelerated development,  
Development Version  
feedback

The frequent upgrade cycle has given MicroImages an accelerated development curve. New features are added and enhanced before you are quite accustomed to the old features. Clients are invited to download the Development Version (updated weekly) to test new features and give feedback.

subscription plan

You can easily keep pace with the release schedule by purchasing a subscription plan. A subscription gives you the next year's upgrades for a reduced price.

release materials

Each release arrives on your desk with the installation CD's and a thick stack of release materials. Detailed release notes describe new features and explain their use. A selection of color plates illustrates sample exercises. Other printed materials include promotional posters, copies of TNT product reviews, and notes on significant new hardware.

One of the most distinguishing characteristics of the TNT products is their frequent and regular upgrade cycle. From V0.9 in 1986, to V 7.0 in 2004, MicroImages released 55 new versions of TNTmips. For you, this means that new features are added and improved quickly, and that your feedback influences the development direction of the TNT products. A subscription plan lets users get each full release version on CD, and the MicroImages web site provides access to the latest Development Version updated every week.

## Fast Software Support

### satisfied clients

Software support must help clients use their software productively. All software has problems, and all users eventually need some kind of help. The question is, how helpful is the help? How quickly are the questions answered? MicroImages supports the TNT products by phone, email, and FAX. Email and FAXes are typically answered within one day.

### FREE

Many software companies provide no free support after an initial introductory period or a limited number of calls. After that, if you don't pay a support subscription fee, you can't get support. MicroImages has always provided unlimited free software support.

### professional software support engineers

Our software support engineers are knowledgeable professionals who have similar technical and scientific training as many of our clients. You can ask an intelligent question and expect an intelligent answer.

### international support

A large percentage of the MicroImages client base is found outside the United States. International clients are welcome to phone, but email and FAXes are often better: they keep no office hours, take no holidays, and are not hard to understand over international phone connections. International clients bridge time, space, and language gaps by using email and FAX for most software support.

Software support is the scandal of the software industry; but not at MicroImages. Our clients regularly give us high ratings for our prompt and knowledgeable software support. Whether it takes one short call, or several iterations, our software support engineers work with you until your problem is resolved. You can talk to the same support staff member each time and in some cases, you will talk to the software engineer who is responsible for the creation and maintenance of the features in question. We want our clients to be productive and satisfied.

## **FREE Fully-Featured TNTlite**

- not a demo** Some companies introduce their products to you with demo versions that disable advanced features and that cease to operate after a trial period. Not TNTlite. TNTlite has all the advanced features of TNTmips, and it has no time limit.
- size limits** The only restrictions in TNTlite are the size of geodata objects, and the disabled export process. TNTlite can share data with the professional TNT products.
- documentation** TNTlite includes the full 2600-page online reference manual, and 80 tutorial booklets with over 1700 pages of introductory material. Tutorial exercises survey the main features of each process. When you complete a booklet, you know the basics of that process. You can view the booklets in Acrobat PDF format or print them on your color printer. Geodata for the sample exercises is distributed both on CD and on the web. You can also check the web and download the most recent revisions of each booklet and consult up-to-date FAQ pages.
- support** MicroImages software support engineers give preference to clients who use the professional TNT products. But as time allows, they also respond to TNTlite users. For the best response, use FAX and email (not phone) for TNTlite software support.

You have never seen freeware like this: an integrated, powerful product, with all features of the professional version. TNTlite runs exactly the same executables as the professional version of TNTmips so that students and learning professional can learn by doing real projects. There are no time limits, no copy restrictions, and you can get the latest updates from the MicroImages web site. The only limits are that geodata object size is restricted, and data export is disabled. You get the complete online reference manual, color tutorial booklets in Acrobat PDF format, and sample data. All for a free download or a low-cost kit containing CD-ROMs and printed materials.

# Advanced Software for Geospatial Analysis

MicroImages, Inc. publishes a complete line of professional software for advanced geospatial data visualization, analysis, and publishing. Contact us or visit our web site for detailed product information.

**TNTmips** TNTmips is a professional system for fully integrated GIS, image analysis, CAD, TIN, desktop cartography, and geospatial database management.

**TNTedit** TNTedit provides interactive tools to create, georeference, and edit vector, image, CAD, TIN, and relational database project materials in a wide variety of formats.

**TNTview** TNTview has the same powerful display features as TNTmips and is perfect for those who do not need the technical processing and preparation features of TNTmips.

**TNTAtlas** TNTAtlas lets you publish and distribute your spatial project materials on CD-ROM at low cost. TNTAtlas CDs can be used on any popular computing platform.

**TNTserver** TNTserver lets you publish TNTAtlases on the Internet or on your intranet. Navigate through geodata atlases with your web browser and the TNTclient Java applet.

**TNTlite** TNTlite is a free version of TNTmips for students and professionals with small projects. You can download TNTlite from MicroImages' web site, or you can order TNTlite on CD-ROM.

## Index

3D perspective .....	11	MacroScripts .....	16
APPLIDATS .....	16	map and poster layout .....	13
Cartoscripts .....	16	map projections .....	11
computed database fields .....	7	MIX .....	4
conversion between platforms .....	5	network access .....	5, 9
customization .....	16	peripheral hardware .....	9
databases .....	7	printing .....	13
Development Version .....	17	Project File .....	3, 5
display process .....	11	raster data types .....	8
export .....	10	relational databases .....	7
fill patterns .....	12	size limits .....	8
floating license .....	9	SML .....	16
format conversion .....	5	support .....	18
geoattributes .....	7	TNTAtlas .....	10
geodata .....	5, 6	TNTedit .....	12
GeoFormulas .....	16	TNTlite .....	19
icon buttons .....	4	TNTpatch .....	17
import/export .....	10	TNTsdk .....	16
international languages .....	13, 15	ToolScripts .....	16
link to external geodata .....	10	ToolTips .....	4
Linux .....	3	UNIX .....	3
locale file .....	15	upgrades .....	17
localization .....	15	vector topology .....	12
Mac OS X .....	3	Windows, Mac OS X, and Linux/UNIX .....	3



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