

# Getting Started



# Sharing Geodata with Other Popular Products

SHARING



with  
**TNTmips<sup>®</sup>**  
**TNTedit<sup>™</sup>**  
**TNTview<sup>®</sup>**

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# Before Getting Started

MicroImages realizes that although the TNT products provide all the features you need for your GIS, image processing, and map making tasks, you may need to acquire data from other sources or share data with people that don't have the TNT products. You may also want to produce multiple page reports or syllabi that include color illustrations. To make such projects as effortless as possible, TNTmips® and TNTedit™ support import and export of numerous other file formats (TNTview® and TNTlite® support import only). Import and Export are the topics of two other Getting Started booklets; this booklet is concerned with the direct use or creation of data in other formats.

**Prerequisite Skills** This booklet assumes you have completed the exercises in *Getting Started: Displaying Geospatial Data* and *Getting Started: Navigating*. The exercises in those booklets provide basic knowledge on how to use the TNT products including how to select and view raster, vector, CAD, TIN, and database objects stored in Project Files. Please be sure you remember how to add and remove layers from a multilayer view and how to use the reference manual. This booklet does not present these basic skills again.

**Sample Data** The exercises presented in this booklet use sample data distributed with the TNT products. If you do not have access to a TNT products CD, you can download the data from MicroImages' web site. The exercises in this booklet use the files in the SHARING directory of LITEDATA.

**More Documentation** This booklet is intended only as an introduction to sharing data with other products. Consult the TNT reference manual for more information on each of the many processes referenced.

**TNTmips and TNTlite™** TNTmips comes in two versions: the professional version and the free TNTlite version. This booklet refers to both versions as "TNTmips." If you did not purchase the professional version (which requires a software license key), TNTmips operates in TNTlite mode, which limits the size of your project materials and enables data sharing only with other copies of TNTlite. All exercises in this booklet, with the exception of the exercises on EPS, editing ARC/INFO and ArcView without converting to internal format, and saving tables to be read by Excel, can be completed in TNTlite using your own data or the sample geodata provided.

*Merri P. Skrdla, Ph.D., 20 June 2000*

It may be difficult to identify the important points in some illustrations without a color copy of this booklet. You can print or read this booklet in color from MicroImages' web site. The web site is also your source of the newest Getting Started booklets on other topics. You can download an installation guide, sample data, and the latest version of TNTlite.

<http://www.microimages.com>

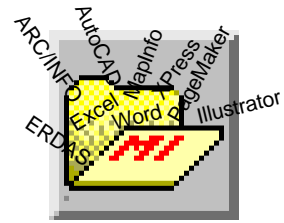
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# Welcome to Sharing

MicroImages is in business to help you get your GIS, image processing, desktop cartography, CAD, and surface analysis projects, among others, done by providing the best software with the most features and excellent technical support. Since you can do all the tasks you need in the TNT products, why would we expend considerable effort on sharing data with other products? Because MicroImages understands that data comes from many sources, and you may need to work with others that don't have the TNT products. And although TNTmips supplies the tools for all the aforementioned tasks and more, it does not do everything. For example, although you can create complex maps and other page layouts in TNTmips, it is not well suited for producing multiple page reports or a course syllabus. So a variety of methods for sharing information with such products is provided.

The sources for acquisition of geodata in other formats and how to import them into TNTmips are the subjects of other booklets in this series (*Getting Started: Acquiring Geodata* and *Getting Started: Importing Geodata*, respectively). This booklet focuses on how to use files in TNTmips and in other software packages without relying on data import and export. The main issue is to get the job you need done as easily as possible regardless of the platform or operating system you use. Because TNTmips is available for all popular platforms, including Mac, Windows (3.1x, 95, 98, NT), Linux, and a variety of Unix platforms, it is most likely available for the platform that is the source of the material you want to also use in TNTmips.

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**Vocabulary:** A link is a connection to data in an external format that allows it to be used in the TNT products but retain its original format.

## STEPS

- launch TNT
- use General File
  - Maintenance or your operating system tools to copy the Project Files and files in other formats in the SHARING data collection to your local drive

Pages 4 and 5 describe system level screen capture. Pages 6–8 address capturing and inserting TIFF files in a variety of software packages. The exercises on pages 9–11 discuss sharing text, layouts, and 3D simulations with other software packages. Using databases as a source of information in TNTmips and database or spreadsheet software is described on pages 12–14. The direct editing and conversion of ARC/INFO and ArcView files are presented on pages 15–17. General sharing issues are discussed in the remainder of the booklet.

# Screen Capture to the Clipboard

If you are running on a Macintosh only or under UNIX, skip the steps in this exercise.

## STEPS

- ☑ launch TNT
- ☑ choose Display / Spatial Data
- ☑ open groups and add layers as desired
- ☑ press the <print screen> key
- ☑ launch an application that accepts input from the clipboard and open a new document
- ☑ choose Paste (usually found on the Edit menu)
- ☑ select the desired part of the screen capture and crop if necessary

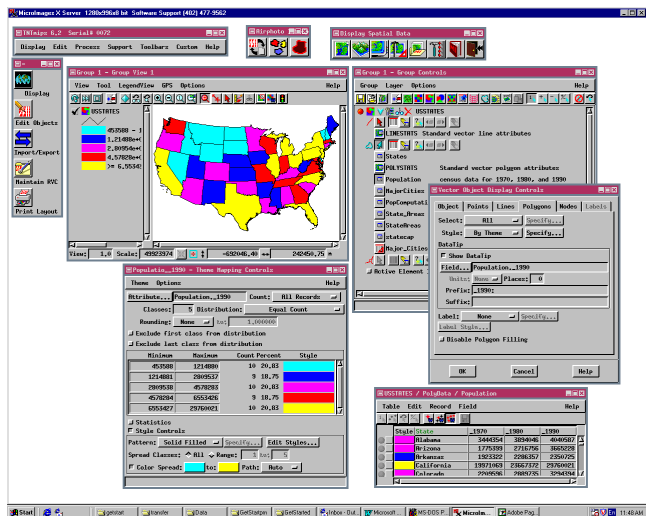
**Note:** If you use <Alt><print screen>, only the window for the active application is captured. In the case of TNTmips, the X Server and all open windows are captured (without the Windows taskbar).

The background color for MI/X is set to white in this screen capture. White is a good color choice for the background when you will be cropping the screen capture and printing it from a word processing or page layout package.

The key stroke(s) used for capture of the current screen image varies with your operating system and keyboard. The operating system also determines where the captured image initially resides. Windows 3.x, 95, 98, and NT have system level screen capture using the Print Screen key on the keyboard. This key is generally found near the keypad or function keys. You may have to press the <shift> key as well on keyboards that have two functions assigned to this key.

Everything on the screen, including the X Server title bar and the Windows taskbar (if showing) are part of this screen capture. The one thing not captured is the cursor.

The screen capture becomes the current contents of the clipboard, which can then be pasted into any application that accepts clipboard input, such as Word or PageMaker. For most purposes, you do not want the entire contents of the screen and need to paste the clipboard into some intermediate product for cropping if your destination program does not provide this feature.



# Screen Capture on the Mac

UNIX platforms have no system level screen capture functions and must rely on various screen capture utilities. The Macintosh does have system level screen capture, but it differs somewhat from that in Windows systems. To make a screen capture on the Macintosh press the Command (key with cloverleaf and open Apple), Shift, and 3 keys simultaneously. Power Macs generally have a Print Screen key on the keyboard, but this key works only with PC emulation programs.

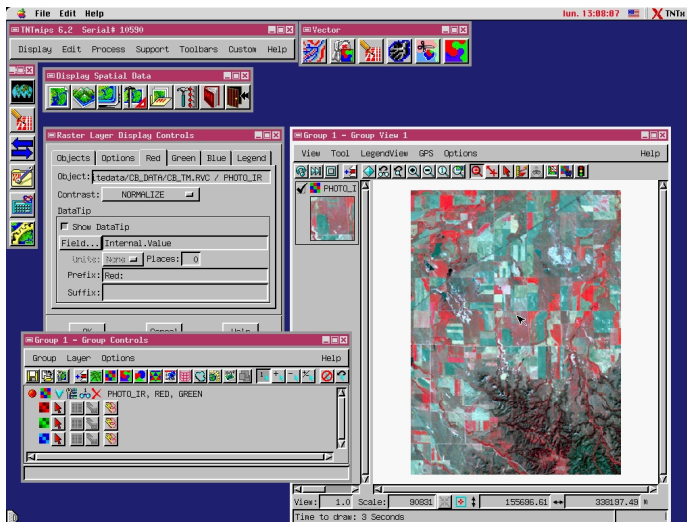
A Macintosh screen capture is not saved to the clipboard, but rather to a file on the startup drive. These files are in PICT format and named Picture 1, Picture 2, and so on. Thus, you can capture multiple screens without overwriting previous captures.

Another difference between Macintosh and Windows screen captures is the presence of the cursor in Macintosh captures. You, thus, need to take cursor position into account before initiating a screen capture. If you are illustrating use of a tool with a context sensitive shape, be sure the cursor is positioned correctly to match the discussion.

If you are running under Windows or UNIX, skip the steps in this exercise.

## STEPS

- launch TNT
- choose Display / Spatial Data
- open groups and add layers as desired
- position the cursor to enhance or at least not obscure your screen capture
- press the <⌘>, <shift>, and <3> keys
- launch an application that can place or open a file in PICT format
- choose the appropriate command and select the Picture n file (last created) from your startup drive
- select the desired part of the screen capture and crop if necessary



The resolution of this Mac monitor was clearly lower than that of the PC monitor used to capture the illustration on the facing page.

# TIFF Capture with the X Server

## STEPS

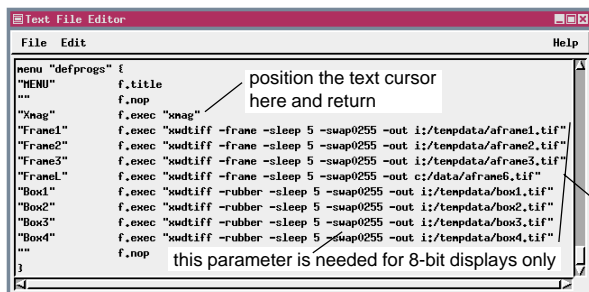
- ☑ choose Edit / Text Files from the main menu\*
- ☑ choose the `TNTSERV.TWM` file from your TNT directory, and scroll to the bottom of the file
- ☑ place your cursor at the end of the line that begins "Xmag" and press <enter>
- ☑ type in the eight Frame and Box lines shown, altering the path to one you can access
- ☑ exit and restart TNTmips
- ☑ hold the right mouse button down anywhere over the X Server background and choose Frame1 from the menu that pops in
- ☑ click on the main menu or toolbar and wait for the file to be written
- ☑ repeat step 6 but choose Box1, position the cursor at the upper left of the main menu bar and pull out a box large enough to include the main menu and drop down menu of your choice, then click on the menu and wait until the file is written before letting go

TIFF (Tag Image Format File) is a series of file formats adopted by Microsoft, Adobe, and others for the transfer of raster images. It can be inserted in word processing, page composition, and graphics programs on both Macintosh and PC platforms.

The TNT products provide a screen capture utility (XWDTIFF<sup>§</sup>) to save a selected window or portion of the screen as TIFF. You can customize your right mouse button window manager menu to provide easy access to this feature. The two most common window capture operations are introduced in this exercise. The output file name is part of the screen capture specification, so multiple entries for the same operation allow you to use the feature more than once before having to either insert or rename files. The bit depth of your display determines the pixel depth of the file captured. Consult the reference manual for other methods and more details.

The "frame" operation captures the window you click on after the cursor changes to the crosshair shape. Any parts of other windows that overlay the selected window will also be captured. The only delayed actions that can be captured are changes in focus. The "rubber" operation captures the area you select with an elastic box and can capture delayed actions, such as opened menu cascades. Position the corner-shaped mouse cursor at the upper left of the area you want captured, then hold the left mouse button as you drag a box to the desired size.

\* You do not need to use TNTmips' text editor, you can use any text editor or word processor, just be sure that you save the document as text and not in some word processing or rich text format.



use any text editor or word processor, just be sure that you save the document as text and not in some word processing or rich text format.

enter paths that make sense for your machine

§ Available from Microlmages' web site



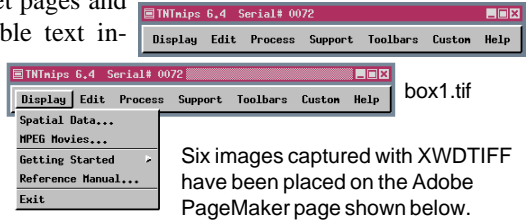
# TIFF into Word or Page Composition

You created two TIFF files in the previous exercise that you can bring into any word processing, page composition, or graphics program that supports TIFF. Such programs include Microsoft Word, Adobe PageMaker, Quark XPress, Macromedia Freehand, Adobe Photoshop, and so on. The method for inserting a captured TIFF graphic will vary with the application, it is typically found on either the File or Insert menu (such as File / Place, Insert / File, or Insert / Picture).

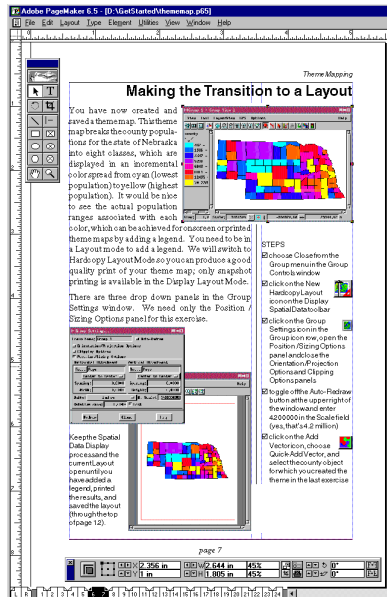
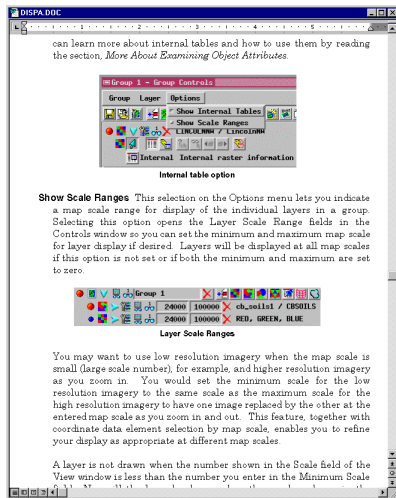
The simplest installation of a product may not be sufficient to insure successful TIFF placement. For example, with Microsoft Word you must install the TIFF translator or you will get pages and pages of mostly indecipherable text instead of an image, and with Super Paint you need to use Norton Disk Editor to change the file type to TIFF before Super Paint will recognize it.

## STEPS

- launch the application you intend to add your screen capture to
  - open a new document or a file into which you would like to insert the graphic
  - choose the appropriate command for the open application and select aframe1.tif
  - repeat step 3 and select box1.tif
- aframe1.tif (starting the name with an "a" makes it quick to find in a file list)





XWDTIFF window captures are inserted directly into the Microsoft Word version of the TNTmips Reference Manual.



# TIFF into TNT Products

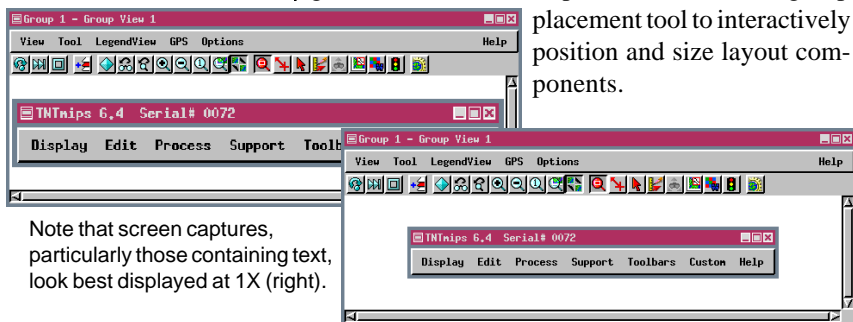
## STEPS

- ✓ choose Display / Spatial Data and open a new 2D group (if necessary)
- ✓ click on the Add Raster icon, choose  Add TIFF from the menu (last item), and select aframe1.tif (from the exercise on page 6)
- ✓ create a new file when prompted, name it TIFFADD, and accept the default name for the object
- ✓ click on the redraw icon if not automatically drawn
- ✓ click on the Zoom 1X icon 

TIFF can also be imported or linked to in the TNT products. However, you may find that bringing TIFF captures of TNTmips' windows into the TNT products can be disconcerting; you may start pushing buttons or try making menu selections and wonder why nothing happens.

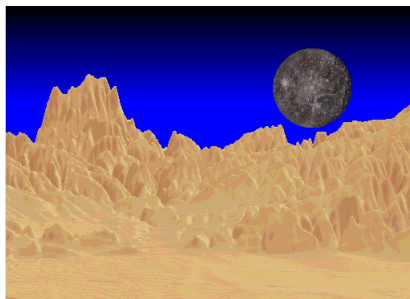
Artistic images prepared in a graphics package can easily become part of a layout in TNTmips. Graphic elements such as logos are placed and sized as separate groups and, thus, require no georeference for incorporation. Other graphic elements, such as a sunset or night sky for replacement of the original sky in landscape photographs require some simple georeference, which can be introduced either in the georeference or mosaic process, or use of the group

placement tool to interactively position and size layout components.



Note that screen captures, particularly those containing text, look best displayed at 1X (right).

The montage below is a layout with three separate groups positioned with the Placement tool in Spatial Data Display and captured with XWDTIFF. The landscape and moon were initially in TIFF format. The sky was generated by SML within TNT. Note that relative size and placement of layout components are easily altered, as with the moon in this layout. See the Getting Started booklet entitled *Making Map Layouts* and the Reference Manual for information about the Placement tool.






# Sharing Text

There are many different instances in which sharing or moving text between TNT and other products is desirable. Many TNT processes, such as Feature Mapping, Automatic Classification, and Database Reports, create text files as part of their output. These files can be incorporated in reports you are generating in a word processing or page design program. Text groups in layouts and metadata can be read from external files maintained by a word processor, which makes features such as spell-checking available for use on these text files.

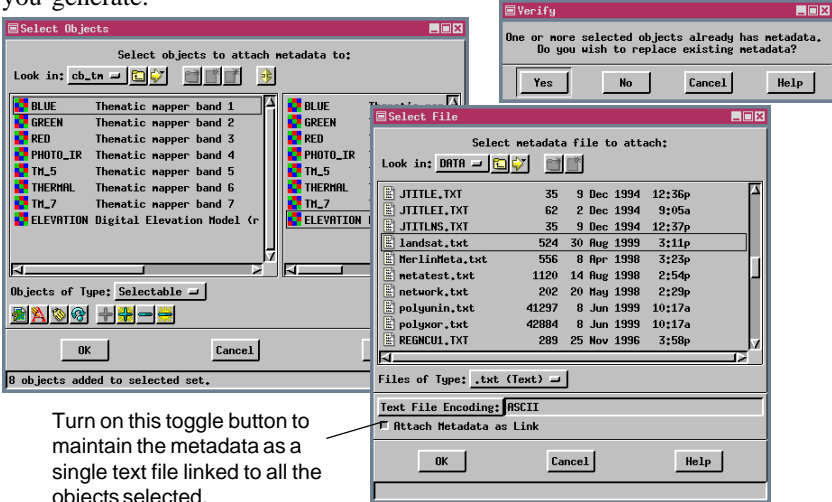
You can continue to edit externally linked TIFF files, but the files must remain the same number of rows and columns or you need to relink. There is no such restriction with linked text files--as long as the name of the file remains the same, you can edit the file as needed (provided it remains in text format).

A single metadata file can be copied or linked to as many objects as desired. The same is true with text files and layouts. If all your layouts include informative text about your company with contact information, you can maintain a single master text file with this information and insert it in every layout you generate.

## STEPS

- choose Support / Maintenance / Attach Metadata
- navigate to and double-click on the CB\_TM Project File in the CB\_DATA data collection
- click on the Add All icon, then click [OK] 
- turn on the Attach Metadata as Link toggle button toward the bottom of the File Selection window that opens next
- select LANDSAT.TXT in response to the "Select metadata file to attach" prompt
- click [OK]

If you attempt to attach metadata to objects that already have it, you are asked whether you want to replace the existing metadata. If you reply "No," metadata is attached only to objects initially without it.



Turn on this toggle button to maintain the metadata as a single text file linked to all the objects selected.

# Layouts from TNT to Illustrator

## STEPS

- click on the Open icon in Spatial Data Display, choose Open Layout, and select the STAIR LAYOUT object in the STAIR Project File in the SHARING data collection
- choose Print from the Layout menu in the Layout Controls window
- click on [Model] and choose EPS File\* from the scrolling list
- click on [File], then on the New File icon, and type in STAIR in the field in the New File window
- click on [Run]
- launch Adobe Illustrator
- choose File / Open and select stair.eps
- add a background or make changes to existing elements

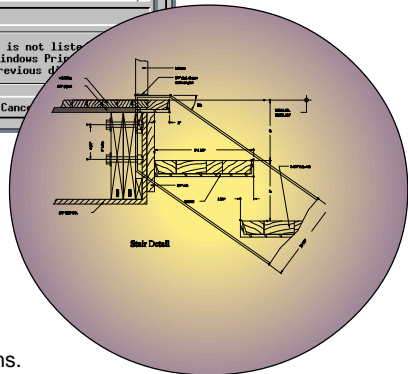
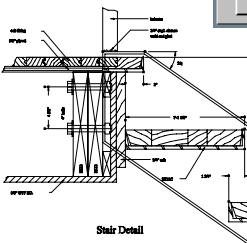
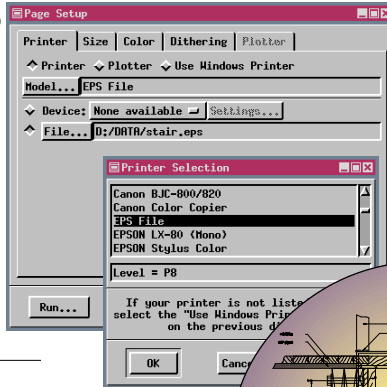
\* EPS File will not be a choice in the Printer Selection window if your printer support level is less than P8.

Compatibility with Adobe Illustrator is achieved by creating EPS (encapsulated PostScript) files through the Print process. This feature requires level P8 printer support and, thus, is not available in TNTlite or in any other TNT product with less than this level of printer support.

EPS format is intended for line data. Raster objects can be converted to EPS but they become unwieldy. For example, the EPS file created in this exercise is about seven times the original CAD object size (240 Kb and 33 Kb, respectively). Conversion of the desert landscape raster shown on page 6 to EPS results in a file more than 100 times the size of the original object (635 Kb raster increases to 83.5 Mb EPS file).

Additionally, vector, CAD, and TIN starting materials can be altered in Illustrator either as a whole (color change) or as individual elements after ungrouping. These EPS files can also be placed in

page layout software but cannot be edited there. Placing EPS files rather than screen captures allows for greater resolution of line data in page layout programs.



Illustrator lets you add embellishments not supported by TNTmips or page layout programs.

## 3D Simulations in PowerPoint

The TNT products provide the ability to generate 3D simulations and save them as mpeg movies for play back. A shortcoming of mpeg players is that all they do is playback the movie--the only annotation is the name of the file in the title bar. More information is generally desirable, even if you're the only one viewing the movie. It is particularly important if you want to distribute the movie and you will not be present to act as narrator when the movie is played.

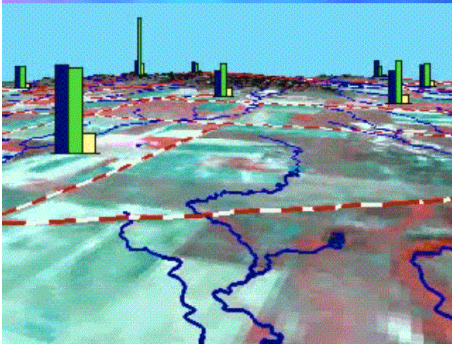
PowerPoint provides the ability to incorporate the movie within a presentation slide and add text, a logo, and whatever else you want as part of the same slide to annotate the movie. This slide can then be packaged into a run-time file that presents the information and plays the movie in response to a mouse click without requiring the viewer to have PowerPoint on their machine.

### STEPS

- click on the 3D icon in Display Spatial Data, choose New 3D Simulation, and set up the layers, path, and parameters as desired
- choose File / Record Movie in the Path Controls window
- launch PowerPoint and start a new presentation or open a previously saved presentation
- choose Insert / Movies and Sounds / Movie from File and select the .mpg file created in the previous step
- annotate the rest of the slide as desired, save it, and choose File / Pack and Go



### Mineral Concentrations in 3D Simulation



The movie at the left shows an "aerial pass" at 1500 meters (absolute elevation) of the Crow Butte area. The color-infrared image of the terrain has roads and hydrology overlaid. The pinmap layer shows selected mineral concentrations centered over the collection sites. The movie was generated in TNTmips.

Click on the image to play the movie.



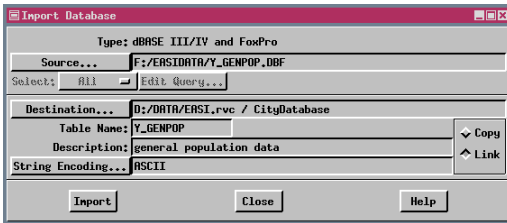
# Direct Linking to Databases

## STEPS

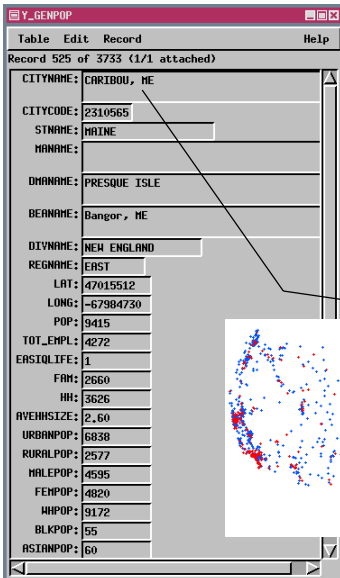
- ☑ choose Process / Import/ Export and set the Object Type option menu to Database
- ☑ double-click on any of the first four formats for which you have data
- ☑ click on the [Source] button to select the file and on the Link button at the lower right of the window
- ☑ set the required Destination information and click on [Import]

Databases can be quite large and are often maintained and updated by someone other than the primary users. Linking to a database, rather than importing a copy of it, lets you always have access to the latest information if you are linked to an externally maintained file. The amount of disk space required for a link is minimal (36 Kb Project File establishes the link to a 58 Mb file on CD-ROM in one example). Also, when you are linked to a database on read only media, such as a CD-ROM or a fileserver for which you do not have write permission, there is no danger that you can accidentally change some of the data.

TNTmips supports direct linking to dBASE III/IV,



R:BASE, FoxPro, and ESRI's INFO format. Direct linking means that TNTmips can read and write to these formats without the requirement for ODBC drivers or setup (see next exercise). If you can write to the database you link to, you can



add records if necessary after the link is established using either TNTmips or the program that initially created the database. You can also sort records without ill effect unless they are directly attached to elements in a vector (or other) object. Sorting records will scramble attachments if records in a linked database are directly attached to the elements.

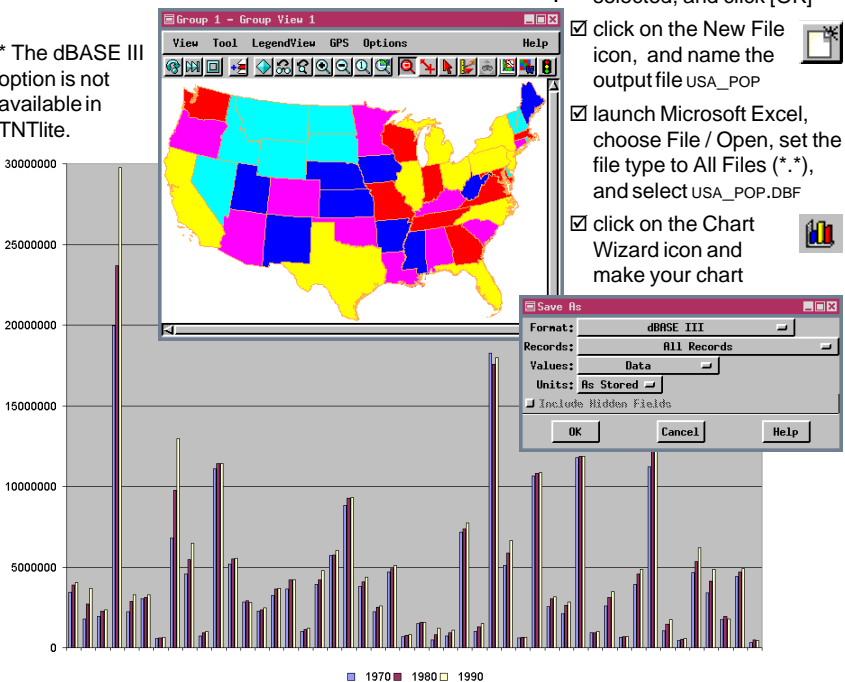
You can display linked databases as pinmaps geographic coordinates are included in each record. Here the cities with population > 25,000 are drawn in red and others are drawn in blue.

# Using Excel with TNT Database Tables

There are a couple of different methods for communicating between tables in TNTmips and spreadsheets in Excel. You can read Excel spreadsheets in TNTmips if you have set up an ODBC data source for the Excel file (see the next exercise). You can also maintain a .dbf file (dBASE III/IV format) and use it in both TNTmips and Excel.

Additionally, you can save an entire table, its statistics rows, or selected records as a .dbf file while viewing the table in TNTmips. This .dbf file can be taken directly into Excel for charting. Excel provides a number of different chart styles, one of which is illustrated below. You are, of course, not limited to making charts in Excel; you can use any of its features.

\* The dBASE III option is not available in TNTlite.



## STEPS

- choose Display / Spatial Data
- click on the Add Vector icon, choose Quick-Add Vector, and select the object in the STATES Project File in the SHARING data collection
- click on the Show Details icon for the vector object, then on the Show Tables icon for polygons
- click on the View Table icon for the POPULATION table
- choose Save As from the Table menu, set the format to dBASE III\* with All Records and Data Values selected, and click [OK]
- click on the New File icon, and name the output file USA\_POP
- launch Microsoft Excel, choose File / Open, set the file type to All Files (\*.\*), and select USA\_POP.DBF
- click on the Chart Wizard icon and make your chart

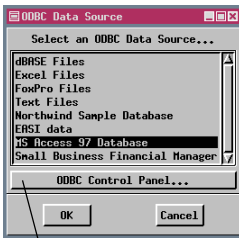
# Databases and ODBC

## STEPS

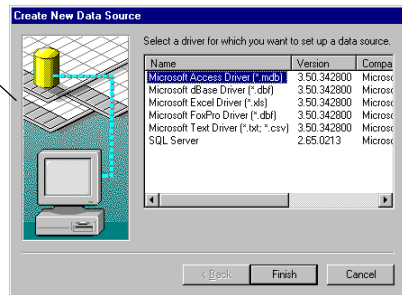
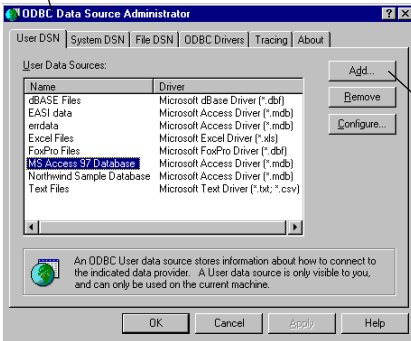
- ☑ choose Process / Import/ Export and set the Object Type option menu to Database
- ☑ double-click on ODBC in the formats list
- ☑ click on the [Source] button to select the ODBC Data Source or on the ODBC Control Panel button if you have not defined the appropriate data source
- ☑ set the required Destination information, choose Copy or Link, and click on [Import]

Open Database Connectivity (ODBC) is a cross platform interface specification that can be used with the TNT products for direct access to database tables in many different formats. If the vendor of the database management software you want to use provides ODBC drivers, you have access to databases in those formats, such as Oracle or Excel. You need to define ODBC Data Sources before you can use them in the TNT products. ODBC Data Sources can be defined at the system level or from within TNTmips' import process. The method for defining data sources is described in the Getting Started booklet entitled *Managing Relational Databases*.

Once your ODBC data sources are set up, you can choose to import or link to the tables in external format. The arguments and restrictions for linking or copying are pretty much as described in the previous exercise, except that records in tables linked through ODBC cannot be directly linked to vector (or other object) elements; they must be indirectly related through a primary key in a table in internal format. ODBC is, however, more tolerant of table editing than direct linking through TNTmips. You can, for example, change the order of fields in an external editor without ill effects.



You can open the system level windows to define an ODBC Data Source from within the Import process.





# Direct Editing of ARC/INFO Files

TNTmips and TNTedit let you open E00 and Coverage files directly in the Spatial Data Editor, which can be saved in their original format after editing or in TNTmips' internal format. Vectors from these formats can only be saved in internal format if you are running TNTlite. Conversion to internal format in TNTmips or TNTedit is achieved through a toggle button in the Object Properties window (Layer / Properties in the Spatial Data Editor window).

ARC/INFO vectors have a limit of 500 vertices per vector line, which must be enforced in the Spatial Data Editor so that the vector can be saved in its original format. If an added line would have more than this number of vertices, a node is added to divide the line and maintain the limit. The number of vertices in a line in the TNT products is essentially limitless ( $>2 \times 10^9$ ).

You need not specify the projection of the vector in the ARC/INFO file. If the projection information (E00) or associated prj.adf file (Coverage) is available, it will be used. You can choose to override this information if you know it is in error.

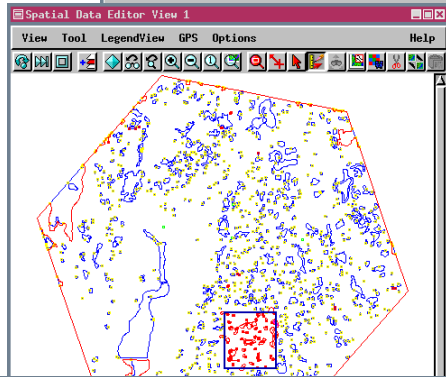
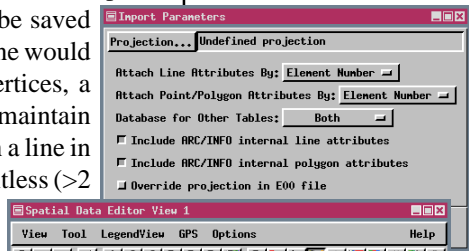
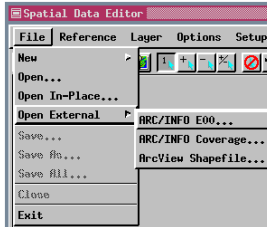
Any associated attribute files are used when you open a coverage. You specify which attributes you want and how to attach them for E00 files.

Table showing attributes attached to selected elements in E00 file opened for editing.

## STEPS

- choose Edit / Spatial Data
- choose File / Open External / ARC/INFO E00\* and select the E00 file you want to edit
- set the appropriate options to get the attributes you want, and click [OK]
- add reference layers as necessary, then add, delete, or edit elements
- choose File / Save As and name the output file

\* select Coverage instead if you do not have an E00 file



 A screenshot of the attribute table in the Spatial Data Editor. The table has columns: AREA, PERIMETER, \_25\_MET\_, \_25\_MET\_ID, and ATTRIBUTE. There are three rows of data, each with a red circle icon in the left margin.
 

AREA	PERIMETER	_25_MET_	_25_MET_ID	ATTRIBUTE
2006.890	173.885	606	1805	PENC
2075.529	168.884	660	1264	PSS/ENC
2098.643	210.000	572	2153	PENF



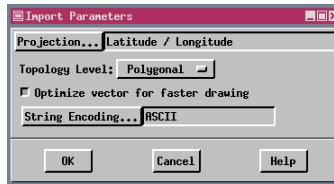
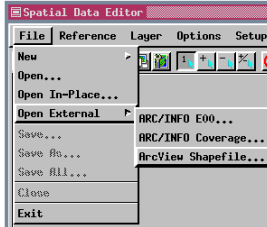
# Direct Editing of ArcView Shapefiles

## STEPS

- ☑ remove the layer from the previous exercise unless you also have a Shapefile in the same geographic area
- ☑ choose File / Open External / ArcView Shapefile and select the Shapefile you want to edit
- ☑ click [OK] in the Import Parameters window (after changing the projection to Lat / Lon if necessary)
- ☑ add, delete, or edit elements, or look at attributes and generate regions (see the related Getting Started booklets if you are unfamiliar with these techniques)
- ☑ choose File / Save As and name the output file if you have done any editing

Note: You may get blank database records if your Shapefiles have "holes" in the data. Holes are not allowed with the stringent polygonal topology enforced by TNTmips. Blank records are created to meet the requirements of One-to-One attachment for newly identified polygons.

ArcView Shapefiles generally have an implied Latitude / Longitude coordinate system, which is offered as the default when you choose to directly edit a Shapefile. No additional options are present in the Import Parameters window because an implied georeference cannot be overridden and there is only one associated database file, which contains one table. The Spatial Data Editor creates standard attributes



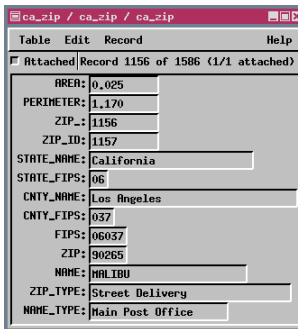
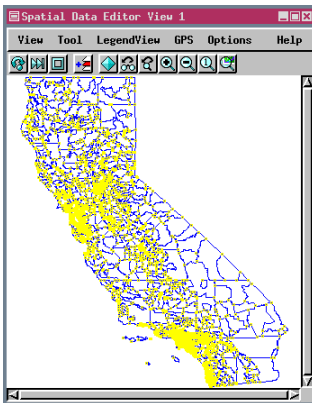
tables for lines and polygons and element ID tables for all element types when the file is opened, but these cannot be saved with the

file unless saved in internal format because of the one table constraint for Shapefiles. Having the standard attributes tables lets you use the Editor's filtering functions that depend on length and area.

Shapefiles do not have the 500-vertex limit for lines that E00 and Coverage files have, so the number of vertices allowed is essentially limitless just as for lines in TNTmips' internal format. Shapefiles

acquired for reference purposes, such as the ZIP code boundaries shown, can easily have a variety of other database information attached and saved

if brought into TNTmips' internal format. The methods for adding tables and converting to internal format are described in the next exercise.

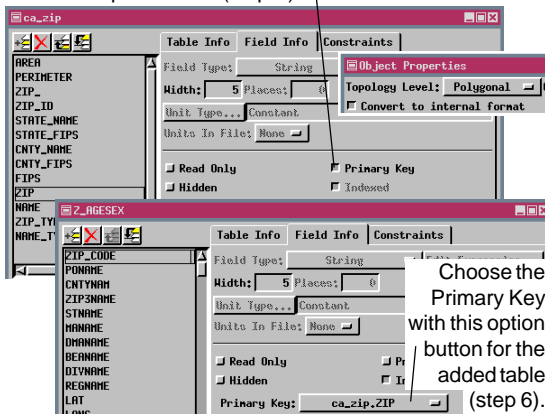


# Add Tables & Convert to Internal Format



A Shapefile database is not relational since there is only one table. The ground work for a relational database, namely a primary key field in the table directly attached to elements, makes associating information in additional tables with elements in the Shapefile a trivial matter. The Shapefile must be converted to internal format for this newly associated information to be saved with the vector.

The Shapefile chosen for this example depicts the ZIP code boundaries in California. There are many commercial sources of data that provide demographic information broken down by ZIP code. The one chosen for this example provides a number of tables in dBASE IV format with such information by ZIP code for the entire USA. You could add this same linked table to the Shapefiles for all states if desired or you could prepare the data before the table is added so it was separated by state. (This database is too large for use in TNTlite.) You can add many tables from a variety of sources that contain information broken down by ZIP code if desired.

Select the desired field, then click here for the Shapefile table (step 4).



## STEPS

- continue with the Shapefile from the previous exercise or remove the layer and select the Shapefile you want to add tables to
- click on the Show Details icon for the Shapefile layer then on the Show Tables icon for the appropriate element type 
- right-click on the desired table and choose Edit Definition from the menu
- select the field for the primary key in the list on the left, click on the Primary Key check button (Field Info tab), then click [OK]
- click on the Make Table/Form icon, choose Add Table and select the database and table you want to add
- choose the corresponding field and set the Primary Key option button to the field you choose in step 4, then set the Attachment Type to Related Only, and click [OK]
- choose Layer / Properties, turn on the Convert to internal format check button, and click [OK] then [Yes]
- click on the Save As icon and name the object 
- use the Select tool and / or GeoToolbox to select elements and view their attributes

Choose the Primary Key with this option button for the added table (step 6).

# Cross Platform Compatibility



\* A "yes" in this column indicates native file compatibility on all platforms supported  
 § Not applicable

Another important sharing issue concerns the use of project materials in a multi-user, multi-platform environment. It is not uncommon to have a mixed workstation and PC environment in the workplace or to work in a Macintosh shop and have a Windows machine at home or vice versa. The question then becomes whether the same software is available for all platforms of interest and, if available, whether you can view and edit the same files or they have to undergo some kind of translation process whenever moved from one platform to another.

Many software packages that run on multiple platforms require some type of translation before the files can be used on a different platform supported by the same software. TNTmips' Project Files can be used on all supported platforms without modification. Some software packages, such as PageMaker, open a new "untitled" document on a different platform. Other software packages, such as ARC/INFO, have special formats for moving between platforms. However, this "near compatibility" is not the same as the transparent data compatibility offered by TNTmips (one native format file for all platforms). The difference is quite apparent when you think you've brought work home, but it's saved for the wrong platform.

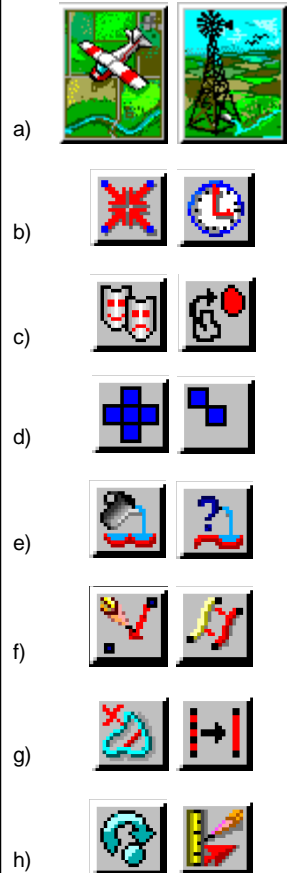
Product	Transparent Data Compatibility*	Platforms Supported				
		Windows 3.x, 95, 98	Windows NT	UNIX	Linux	Macintosh
TNTmips	Yes	Yes	Yes	Yes	Yes	Yes
ARC/INFO	No	No	Yes	Yes	No	No
ArcView	Yes	95, 98	Yes	Yes	No	Yes
ERDAS	Yes	Yes	Yes	Yes	No	No
Word	Yes	Yes	Yes	No	No	Yes
PageMaker	No	Yes	Yes	No	No	Yes
Illustrator	?	95	Yes	Yes	No	Yes
AutoCAD	No	Yes	Yes	Yes	No	No
Excel	Yes	Yes	Yes	No	No	Yes
ODBC	N/A <sup>§</sup>	95, 98	Yes	Yes	Yes	No

## More About Sharing

TNTmips also provides new processes and new features in existing processes, including SML, with every quarterly release. But MicroImages realizes that even if all the tools to get your projects done are available in TNTmips, there will often be some reason you have to get your project materials from or into another format. So an additional feature of TNTmips is to make it as easy as possible to make such transitions when necessary. Devoting a *Getting Started* booklet to the topic is one method of making such transitions smoother. Additionally, TNTmips, TNTedit, and TNTview all include Spatial Manipulation Language (SML) as a customization and design tool. SML is a simple, cross-platform programming language for geospatial analysis that lets you go beyond the predefined processes found on the standard menus and provides another means of sharing with other products. You may often encounter data problems that can't be solved in TNTmips, particularly if you work with a data format specially created for your organization and collection devices. SML provides functions to handle many of these situations, such as importing ASCII to create raster, vector, CAD, or TIN objects. You can set up such import or export as a batch process using SML.

Another approach not yet mentioned for sharing data is through implementation of new features requested by our clients. Many of the ideas for new features that become a part of TNTmips come from clients. An extensive list of new feature requests is maintained by MicroImages, some of which are implemented with each new release. The priority given to new feature requests is influenced by the current direction of software development, but it never hurts to get your requests in to the software support staff.

Think you're familiar with all the features in TNTmips? Then take this quiz. Identify the process with which each pair of icons is associated.



Answers: (a) Sample Turnkey Product (b) Network Analysis (c) Feature Mapping (d) Morphological Functions (e) Watershed Analysis (f) Spatial Data Editor (g) Vector Filters and Spatial Data Editor (h) almost all processes

# 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 with the current set of *Getting Started* booklets.

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**MicroImages, Inc.**

11th Floor – Sharp Tower  
206 South 13th Street  
Lincoln, Nebraska 68508-2010 USA

Voice: (402)477-9554  
FAX: (402)477-9559

email: [info@microimages.com](mailto:info@microimages.com)  
Internet: [www.microimages.com](http://www.microimages.com)