INSTALL MAC

Macintosh

Installation and Setup Guide

for the

TNT Products

Installation for Macintosh

The TNT Products run on Windows, Macintosh and UNIX computers. This booklet gives you installation and configuration instructions for using the TNT Products on Macintosh computers. If you are installing the TNT products on a UNIX or Windows computer, refer to the companion booklet provided for your machine.

FREE Upgrade

Please take a few moments to fill out the Product Registration Form located in the middle of this booklet. All clients who register their professional TNT product receive their first quarterly upgrade from MicroImages FREE.

11 October 2001

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MicroImages distributes the TNT Products with three kinds of license options. You may use your TNT Products only according to the type of license you have.

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(See illustration, page 9)

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6 June 2001

June 2001

IMPORTANT: Your software license key IS your TNT professional product. Without your key, you can run only the TNTlite versions of the TNT products. Therefore, you should take steps to ***safeguard your key***, even as you take normal precautions to safeguard other valuable possessions. Insure your key for loss, theft, or damage. If you lose a diamond ring, the jeweler does not give you a new one. If you lose your TNT product software license key, you must purchase a new product license. MicroImages will replace damaged keys for a fee. Keys are very sensitive to spurious electronic signals. If you attach your key to the wrong kind of device, the key could be damaged beyond repair. For example, you may install a parallel key in-line only with a printer: do not put a key in-line on a port with a device other than a printer (no "Parallel-to-SCSI" adapters, no ZIP drives, no tape backup units).

MicroImages software support engineers are ready to help you with TNT installation, setup, and operational problems. If you are using the TNT professional products, contact us at:

Software Support: (402) 477-9562
FAX: (402) 477-9559
Email: support@microimages.com

If you are using the TNTlite versions of the TNT products, ask for help from your campus computer lab supervisor or your company's computer support and training specialists. TNTlite users may contact MicroImages directly, but our support staff gives priority to our professional clients.

Contents

Overview

Welcome to professional GIS, Image Processing, and Desktop Cartography at its best. The TNT products from MicroImages, Inc. are the most innovative and technically sophisticated professional products for geospatial data management and analysis available today. A host of professionals in over 135 nations around the world use the TNT products for production tasks in a wide variety of disciplines. We are glad to have you with us.

To use the TNT products on a Macintosh, your computer needs 32 Mb or more of RAM, a CD-ROM drive, and about 100Mb of free hard drive space.

Install and set up the TNT products according to the instructions in this manual. You may install the free-use TNTlite products without a software license key, or you may install the TNT professional products with the software license key supplied by MicroImages, Inc. The software license key for Macintosh attaches to an Apple ADB connector on your computer (for example, between the mouse and keyboard) and authorizes your TNT professional products for the product level, special peripheral support, and special software (such as TNTsdk) that you purchased. In either case, you will get the best performance from your system by following the configuration and optimization recommendations in this manual. The general sequence is:

1. Install the software license key,
2. Configure and optimize your computer,
3. Install the TNT products from CD-ROM, and
4. Customize your TNT environment.

If you are a professional client (using a software license key with the TNT professional products), please contact MicroImages software support when you need assistance:

Phone (402) 477-9562,

FAX (402) 477-9559, or
email support@microimages.com.

TNTlite users should contact the computer lab administrator at their school or company for technical support.

TNTlite

TNTlite is the name of the free "lite" versions of the TNT products (TNTmips, TNTedit, and TNTview). The TNTlite products have the same features and functions as the TNT professional products, except that data export is disabled, and the size of the data objects is limited in size:

Raster objects: 314,368 cells with a maximum dimension of 1024 (such as 1024 x 307, 614 x 512, or 307 x 1024)
Vector objects: 500 points, 1500 lines, 500 polygons
CAD object: 500 elements
TIN objects: 1500 nodes
Database objects: 1500 records per table

These size limitations are designed to provide students and professionals with enough capability to accomplish small projects in lab settings where there is no need for the full production capabilities of the professional TNT products.

The export processes in TNTlite are disabled. However TNT project materials prepared or modified in TNTlite can be used with the professional TNT products.

TNTlite requires no key and has no time limit. You are encouraged to copy and share TNTlite freely. A TNTlite kit containing the current TNT products CD-ROM and a series of *Getting Started* booklets can be ordered for the cost of shipping and reproduction. You may download TNTlite and the *Getting Started* booklets from the MicroImages Web site (http://www.microimages.com).

If you are installing TNTlite, follow the installation instructions in this manual for each of the TNTlite products you want to try. The installation process installs the same executables for TNTlite as it does for the TNT professional products. If you remove the Software License Key from a computer, you can still run TNT in TNTlite mode by changing the TNTlite value in tnthost.ini:

```
[KEY]
TNTlite=1
```

Upgrade TNTlite to a Full License

If you like what you see of the TNT products with TNTlite, contact MicroImages or an authorized TNT products dealer to upgrade to a professional TNT system.

Step 1

Software License Key Installation

The first step in installing the TNT products is to connect the MicroImages Software License key to your computer. After you complete this step, proceed to Step 2: System Configuration. (If you want to install only the TNTlite versions of the TNT products, then you do not need a key.)

IMPORTANT: Your software license key IS your TNT professional product. Without your key, you can run only the TNTlite versions of the TNT products. Therefore, you should take steps to safeguard your key, even as you take normal precautions to safeguard other valuable possessions. Insure your key for loss, theft, or damage. If you lose a diamond ring, the jeweler does not give you a new one. If you lose your key, MicroImages does not give you a new one. Keys are very sensitive to spurious electronic signals. If you attach your key to the wrong kind of device, the key could be damaged beyond repair.

If you want to install only the TNTlite versions of the TNT products, then you do not need a key. But to run the TNT professional products, you must attach the software license key supplied by MicroImages, Inc. The key contains sealed circuitry that is individually programmed to work with your version, product level, and optional hardware. TNT products have no other copy protection, so you can install one copy on as many machines as you want and then move the key between them (within the hardware limitations described below). When you run a TNT product, the system looks for the key to verify your version, product level, and optional peripheral equipment support.

Before you install the TNT professional products, attach the software

license key. The key for Macintosh is labeled “USB” or "ADB". The ADB key attaches to an ADB connector, such as between the mouse and keyboard. The USB key attaches to the Mac’s USB port. Do not try to use a parallel or serial key (used with TNT products on Windows and UNIX computers) with a Macintosh.

The keys are easily installed and detached, so you can move a key from machine to machine. But remember that in high-traffic shops, you may wish to make the key more secure so it does not get moved to another machine without authorization. Electronically, any number of keys can be connected to your Macintosh without creating any mutual interference.

TNT Keys for Other Computers The hardware characteristics of the various kinds of computers require the use of four basic kinds of keys: Parallel, Serial, USB, and ADB.

Windows and LINUX computers can use a Parallel port key. NT and LINUX computers must use the Parallel key. Parallel keys reliably support pass-through connection of a printer to the same port. (*DO NOT install a parallel key in line with any device other than a printer: no GPS devices, no ZIP drives, and no CD-ROMs on the same port*.)

Windows 98/2000 and Mac computers should use the USB key.

UNIX computers must use a serial key. Serial keys often do not support transparent pass-through connection of peripherals to the same port

Macs may use an ADB (Apple Desktop Bus) key that connects with the keyboard and mouse, but the USB key is recommended.

Platform	USB Key	Parallel Key	Serial Key
Windows 95	not supported	**RECOMMENDED**	not recommended
Windows 98	**RECOMMENDED**	available	not recommended
Windows ME	**RECOMMENDED**	available	not recommended
Windows NT	not supported	**RECOMMENDED**	not recommended
Windows 2000	**RECOMMENDED**	available	not recommended
Windows XP	**RECOMMENDED**	available	not recommended
LINUX (various)	not supported	**RECOMMENDED**	not recommended
UNIX (various)	not supported	not supported	**REQUIRED**
MacOS 9.x*	**REQUIRED**	not supported	not supported
***** Mac can also use an ADB Key, but USB Key is recommended.			

Step 2

System Configuration

The second step in installing the TNT products is to configure the hardware and operating system of your computer. After you complete this step, proceed to Step 3: TNT Installation for Macintosh.

To use the TNT products, your Macintosh needs at least 16Mb of RAM, a CD-ROM drive, and about 100Mb of free hard drive space.

Display Boards

TNT products work with several color display modes. The TNT products require a display mode of at least 640 x 480 pixels with at least 256 colors. Depending on the size of your monitor, you will probably prefer a screen resolution of 1024 x 768 or higher. You may also choose color depths of either 8-bit (256-colors), 16-bit (32,000 colors), or 24-bit (16 million colors). All TNT products automatically and transparently handle all color display and conversion matters. Use the display mode controls in the Macintosh Control Panel to choose the setting you want.

Project File Buffers

Most memory management issues are handled by the MacOS. Some additional performance gain can be realized if you have a computer with lots of RAM. You can increase the size of the internal buffer used by the Project File (RVC) read/write functions in the TNT products if you computer has plenty of RAM (not virtual memory). The default RVC buffer size is 256K. It can be set to some other value in the TNTHOST.INI file under the heading RVC. Example:

```
[RVC]
MinBufferSize=1024
```

(The TNTHOST.INI file is located in your TNT directory and can be edited with any text editor. Refer to the section *TNT Customization*.)

Note, the RAM you set aside for RVC buffering is reserved only during the operation of TNTmips. Changing the size of the buffer has no impact on your other software. On the other hand, this buffer memory is not available to other TNTmips processes, so if you set it too high, other TNT processes will start swapping out to disk for virtual memory.

Choosing a buffer size depends on what you typically do with TNTmips, the amount of RAM you have, and how many TNT processes you use concurrently. Increasing the buffer size is most useful when you are working with large vector, CAD, and/or database objects. Some TNTmips processes, such as the object editor and validate topology, do not deal with such objects in a linear fashion. Thus they work faster with a large buffer. On the other hand, raster processes use transparent caching of raster tiles and operate efficiently without any changes in the RVC buffers.

Technically, the buffer size depends on the total amount of memory available and the number of TNT processes running concurrently. If you usually run only one TNT process (in addition to TNTmenu and MI/X), and if you have 16 megabytes of RAM, then increasing the buffer to 512 kilobytes or 1 megabyte is recommended. But if you run 2 or more processes at a time, the buffer size should not be increased unless you have more than 16 megabytes of RAM. As a rule of thumb, set the buffer at 1 megabyte for each 16 megabytes of RAM.

Macintosh Configuration

TNT products work well in the MacOS. The Macintosh Control Panels let you switch easily between color display modes, choosing 8-bit (“hundreds”), 16-bit (“thousands”), or 24-bit (“millions”) color modes. The TNT products work best with the MacOS version 8.1 or newer, so upgrade your MacOS. If you have an older Macintosh that cannot run MacOS 8.1, then read the following paragraph carefully.

Older versions of MacOS The MacOS before version 8.1 does not manage memory optimally. As a result Macintosh computers with older version of the MacOS require large amounts of RAM to accommodate multiple programs. For the TNT products on a pre-8.1 Macintosh, you need

at least 32 Mb of RAM if you use several programs simultaneously. You may relieve the RAM management situation by buying lots and lots of memory, or by using third-party memory management utilities for Macintosh, such as RAMdoubler and Optimem (both recommended). You may also use the MacOS control panels to set aside a portion of hard disk space as virtual memory. Virtual memory is fine for occasional use, but when your system becomes so crowded that it is constantly swapping memory to disk, then you need more real memory.

Peripheral Hardware

You can install and configure most peripheral hardware devices for use with TNT products without special instructions. Follow the installation instructions for your computer in the manufacturer's documentation. Be sure to install any system extensions that the documentation specifies. If the device comes with a disk that contains supporting software, install the software according to the installation instructions. Run the manufacturer's demo program to make sure the device works with your computer.

Note that you can use special hardware devices with TNTmips only if your TNT product license includes support for the hardware in question. Thus for example, if you acquire a special large-format color scanner, you may need to upgrade your TNT license if you want to use the scanner directly in the relevant TNT processes. Contact MicroImages if you have questions about what peripheral devices your current license supports. Remember, too, that your large format color scanner may come with its own scanning software. You may decide to do all you scanning outside TNTmips, and then import or link to the resulting rasters with TNT.

After your peripheral device is connected and working, you can select its device type and interface port in TNT from the Support / Setup process. You may also select and control your peripherals settings from within the TNT processes that use that hardware device.

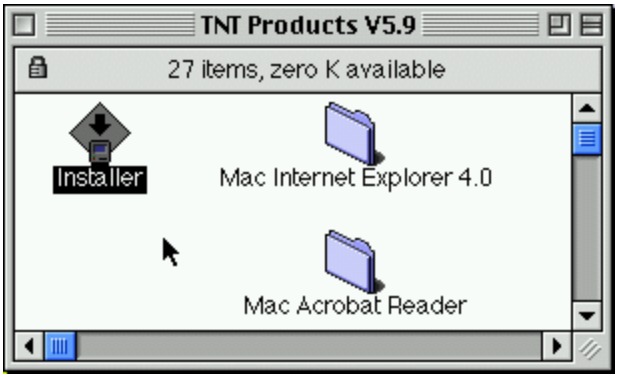
Configuration Help

If you have problems configuring peripherals to work with TNT whose setup and testing software does work on your Macintosh, contact Micro-Images software support by phone, FAX, or email.

Step 3 - TNT Installation

Macintosh

Insert the TNT Products "A" CD-ROM into the CD-ROM drive on your Macintosh. Open the CD icon, and double click the "Installer" icon.

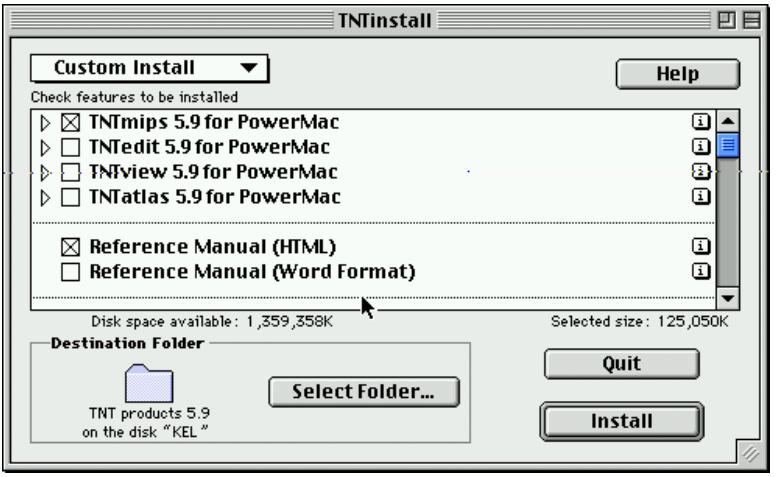


The Install Process

The TNT install process presents a series of control and information windows that present product installation options. If you are installing the TNTlite versions, the install process presents a series of extra informational windows.

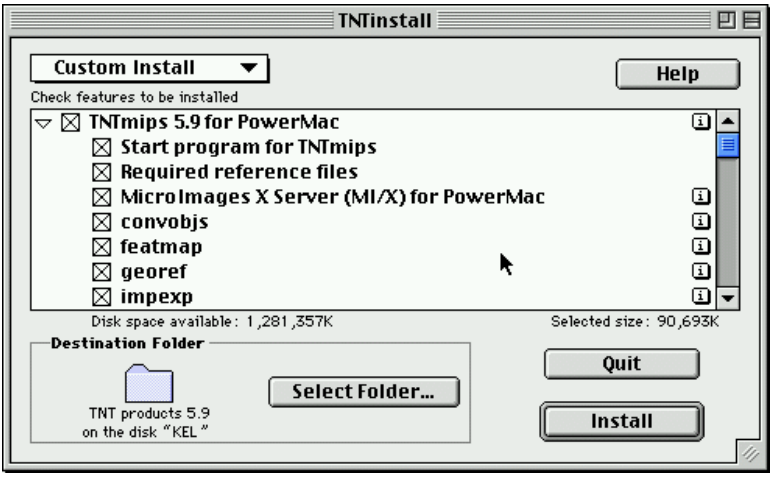
The TNT setup process for Macintosh presents installation options in one primary control window. For installation, specify "Custom Install" in the option box at the top of the TNTinstall window. You may subsequently remove installed elements by switching to the "Custom Remove" mode.

Click the check box next to each option you want, and press the Install button at the bottom of the window to proceed.



Expand Triangle: Install Individual Files

You may wish to customize your TNT installation, installing only some heavily-used process and reference files on your hard drive. You may also wish to re-install certain files if your existing files become corrupted by drive problems, or if they are accidentally deleted. Click on the Expand Triangle beside an option checkbox to expose a list of the individual files governed by that main option. Each individual file has its own checkbox, so you can select just the files you want for installation. An information button at the right end of each line opens a standard Macintosh file information window that describes the function of that file.



Documentation Options

A 2500-page set of illustrated online reference manual contains detailed instructions on the features and use of the TNT products. You can install the text and the associated illustrations in HTML format. (The TNT Products launch your selected HTML browser software when you display the TNT online reference manual). You can also install the source files (with embedded illustrations) in Microsoft Word format. You can use Microsoft Word with the source files to print selected sections with enhanced formatting, or easily extract selected sections for special uses.

Sample Datasets

MicroImages supplies sample data for both the professional and TNTlite versions of the TNT products. You can click the expand triangles beside the install options to select individual Project Files. Project Files centered on the Crow Butte map quadrangle in northwestern Nebraska include a SPOT image, multispectral Landsat TM images, Soil vectors, USGS Digital Line Graph (DLG) vectors, and an elevation raster. Project Files for the Hayward map quadrangle (east of the San Francisco Bay) include Color-infrared NHAP airphotos, stereo SPOT images, soil vectors, USGS DLG vectors, Digital Chart of the World vectors, TIGER vectors, and scanned USGS map sheets. The Hayward quad data is all prepared so that it works within the data size limits for TNTlite. The Crow Butte TM data also works within the TNTlite limits, as does a cutout of the Crow Butte SPOT image with coextensive soil vectors in the Crow Butte Project Files.

Sample SML Scripts

The TNT products are highly customizable with the Spatial Manipulation Language feature. You can write custom scripts for many tasks, from simple processing, to complex interactive display and analysis applications. You can install a number of sample scripts that demonstrate the use of many SML functions and scripting techniques. Installed scripts can be selected from the Custom menu cascade on the main TNTmips menu.

Enable Software Options

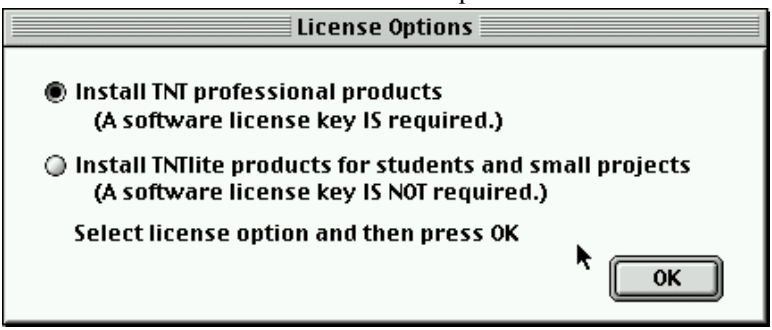
If you have purchased special software options with your TNT professional product, use this option to setup and enable support for your special peripherals.

Destination Folder

You can install the TNT products to any target folder you choose. The install process suggests a default; change the destination by pressing the Select Folder button and using the standard MacOS folder selection techniques to name a new destination.

License Options

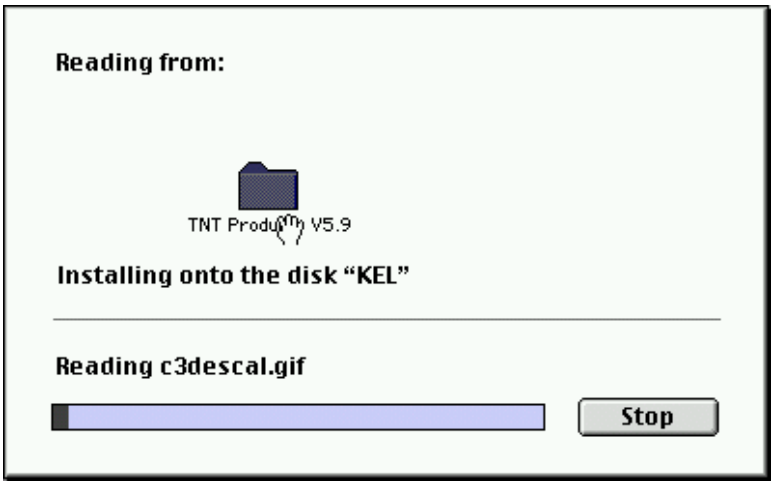
After you click the Install button in the TNT install window, a License Options window asks you whether you are installing the professional version or the TNTlite version of the TNT products.



If you are not installing TNTlite products, the install process opens a window and asks you where your key is installed. Click the radio button next to the ADB port. You may verify that your key is correctly installed by clicking the Test button. Then press OK to continue. (This version of the professional TNT products does not work with keys mounted on Modem or Printer ports.)

Software License Key Upgrade. When you renew your subscription to the TNT products, the install process opens a window and asks you to enter an authorization code to enable your key for the new version. Enter the code exactly as it appears on the authorization notice that you receive from MicroImages.

As the install process copies files from the CD to your computer, it displays a status window to show you its progress. You can interrupt the process and cancel the installation or postpone its completion by clicking the Stop button.



Starting TNTmips

Open the TNT products folder and double click on the **TNT product** icon. TNT displays a MicroImages logo screen and then opens a full screen window named **MicroImages X Window System** (MI/X). All TNT processes take place within this unique X Server. Treat the MicroImages X Window System as a simple background window. Any time during a TNT session, you can use the normal Macintosh techniques (such as the Apple menu or the Application menu) to jump from MI/X back to the Mac desktop. As always, <Shift-Command-3> captures a snapshot of the current screen to a Picture file.

TNT posts the main menu bar with the selections Display, Interpret, Prepare, Support, Toolbars, Custorm, and Help. You will notice that all the TNT windows within MI/X use a different window manager than the one in the MacOS. For example, the title bars, close buttons, and resize controls are different than those the MacOS uses. Look for the Getting Started booklet *Displaying Geospatial Data* (available on the CD in PDF format) for an introduction to the use of the TNT products.

Unable to open :0.0?

If you launch TNT and get an error message "unable to open :0.0," then go to the Macintosh "Sharing Setup" control panel and type in a name (such as "MyMac") in the Macintosh Name box. MI/X needs some machine name internally when it starts up.

Step 4
TNT Customization

The last step in installing the TNT products is to customize the control files. Of course, you may completely skip this step and use the TNT products with the default configuration. Later, you may wish to return to this section after you are familiar with the default settings and have an idea of what you want to change.

A number of control files let you change your TNT configuration. This section explains how to change those files in order to customize elements of the TNT interface, including things like window colors, or default window positions for various processes. Many of these interface elements can be changed in TNTmips with Support / Setup / Preferences. Changes you make in that process are recorded in these control files. Other interface elements cannot be changed from within TNTmips. To customize those elements, you must edit the files introduced here.

The control files are shared among all the TNT products that you install: TNTmips, TNTedit, TNTview and TNTatlas. Preferences that you set in the control files appear the same way in all of the TNT products. If you want different settings for each product, then you must maintain multiple versions of the control files.

MicroImages, Inc. has designed TNT products to be so flexible that it is possible to translate the entire interface (including menus, buttons, and processing messages) into another language, even a language that uses a non-Latin alphabet. (Refer to the Getting Started booklet entitled *Changing Languages (Localization*).)

TNTHOST.INI

The TNTHOST.INI file contains setup and default information for your

installation of the TNT products. Many of the sections are managed automatically, recording changes you make in TNTmips in the Support / Preferences processes. Thus, you have little need to edit TNTHOST.INI directly.

TNTHOST.INI uses a logical structure like that of the .INI files in Microsoft Windows. Each section of TNTHOST.INI begins with a class word enclosed in square brackets, in the form

```
[class]
```

Each line following the class declaration controls a variable or default associated with that feature of TNT in the form

```
KeyWord=value
```

NOTE: if your TNTHOST.INI file is accidentally erased, you can make a new one by copying the TNTHOST.SAV file that is installed as a normal part of the installation process.

The TNTHOST.INI file that comes with the TNT distribution is relatively short:

```
#
#     TNT Process host settings file (TNTHOST.INI)
#

[Files]
TempFile=KEL
TNTPATH=
HTMLBrowser=

[AppAssoc]
htm=netscape
html=netscape
mpg=
mpeg=

[KEY]
driver=adb
TNTlite=0
RVCLiteProtectionLevel=0
UseFLEXlm=No

[TCPIP]
InitTCPIP=Yes

[RVC]
AllowUnlockInOpen=No
MinBufferSize=256

[DIGITIZERS]
Port=COM2
Type=serial_port
Name=none
File=0
```

The **[Files]** section tells TNTmips where to find (or put) certain files during a work session. Some processes create temporary files, and the **TempFile** assignment above specifies the drive named "KEL" for temp files. The **HTMLBrowser** assignment lets you specify the location of your browser software (such as Netscape or Internet Explorer) that TNT launches for the online documentation.

The [**AppAssoc]** section lets you specify which applications you want TNT to launch when you open certain file types in TNTmips (such as the .HTM files of the online reference manual). TNT looks first at these assignments in TNTHOST.INI. If the assignments are not made here, then TNT uses the associations (if any) of the system environment.

The [**KEY]** section contains control information for your software license key. If you use the TNT professional products and want to try TNTlite, modify the TNTlite line in the form

```
TNTlite=1
```

IMPORTANT: any project materials that you modify in TNTlite mode CANNOT BE USED AGAIN in the TNT professional products. ***So, DO NOT use TNTlite to modify any project materials that you want to use in the TNT professional mode.*** If you have important project materials, MAKE COPIES and use TNTlite ONLY on the copies. Set TNTlite=0 to return to the TNT professional products mode. **RVCLiteProtectionLevel** lets you turn on warning messages in TNTlite so that you are less likely to change your project materials and thus make them unusable in the professional TNTmips product.

Key Support This version of the professional TNT products for Macintosh works only with ADB keys.

```
[key]
driver=adb
```

The install program sets the initial driver value (ADB) automatically during installation. You cannot swap TNT product keys with other types of computers (UNIX or Windows). The serial port and parallel port versions of the TNT product keys do not work on the Macintosh.

The **[TCPIP]** section lets you turn off TCP/IP initialization when the MI/X server starts up at the beginning of a TNT session. Some Windows users need to turn off **InitiTCPIP** to prevent the system from dialing their modems and attempting to connect with a remote ISP when they launch a TNT session. This problem is not known to occur on the Macintosh.

The **[RVC]** section lets you change the way TNT opens Project Files. **MinBufferSize** lets you set aside a larger buffer in RAM, which generally speeds up file access. (Increase the default 256 value to 1024 if your computer has plenty of RAM.) **AllowUnlockInOpen** lets TNT offer an Unlock button in the dialog that TNT shows you when you try to access a locked Project File. The AllowUnlockInOpen value can be set in TNTmips in the Project File tab of the Support / Setup / Preferences process.

As you use TNTmips, the system automatically creates and updates sections of TNTHOST.INI according to your use of the processes, saving the changes you make as defaults. For example, if you change your Localization preferences, (Support / Localization / Change Text File Encoding), then TNTHOST.INI will contain an [**Encoding**] section that records your preferences.

TNTSERV.TWM (system.twmrc)

The TNTSERV.TWM file controls the appearance and features of the TWM window manager used by the TNT products. NOTE: If you have access to a UNIX installation that includes the X Window System, you can read all about TWM in the system documentation. Invoke the UNIX help manual entry for TWM with a command in the form

```
man twm
```

To use customization features for TWM on your Macintosh, rename the TNTSERV.TWM file as system.twmrc. The distribution version of TNTSERV.TWM uses only a subset of the TWM features. (You can add others if you wish.) This documentation presents an overview of only three parts of system.twmrc that are relatively easy to customize. Many optional TWM features are included in system.twmrc on commented lines (lines that begin with the "#" character). You can turn on such TWM features by removing the comment character.

The sections of system.twmrc are "self-documented" with comment lines. To begin with, look for the line near the beginning of the file with a comment to the effect, "# The following lines set fonts:"

TWM Interface Fonts

```
# The following lines set fonts:
TitleFont "-misc-fixed-bold-r-normal--13-120-75-75-c-70-iso8859-1"
#TitleFont "-adobe-helvetica-bold-r-normal--*-120-*-*-*-*-*-*"
ResizeFont "-adobe-helvetica-bold-r-normal--*-120-*-*-*-*-*-*"
```

```
MenuFont "-adobe-helvetica-bold-r-normal--*-120-*-*-*-*-*-*"
IconFont "-adobe-helvetica-bold-r-normal--*-100-*-*-*-*-*-*"
IconManagerFont "-adobe-helvetica-bold-r-normal--*-100-*-*-*"
```

You may wish to edit the lines TitleFont, ResizeFont, MenuFont, IconFont, IconManagerFont to select a different interface bitmapped font for those window manager elements. You can specify any bitmapped X font (*.BDF, "Bitmapped Distribution Format") that is available on your system. (More information on font specification is available in the Getting Started booklet *Changing Languages (Localization)* from MicroImages, Press.)

TWM Window Manager Colors

The next section of general interest controls the color scheme for the window manager:

```
Color {
     BorderColor "Navy"
     BorderTileBackground "gray60"
     BorderTileForeground "gray60"
     DefaultBackground "maroon"
     DefaultForeground "gray85"
     TitleBackground "maroon"
     TitleForeground "gray85"
     MenuBackground "maroon"
     MenuForeground "gray85"
     MenuTitleBackground "gray70"
     MenuTitleForeground "maroon"
     IconBackground "maroon"
     IconForeground "gray85"
     IconBorderColor "gray85"
     IconManagerBackground "maroon"
     IconManagerForeground "gray85"
     }
```

You can experiment with any color combinations you like. You must use color names as they are listed in the RGB.TXT file in your TNT directory.

TWM Menu Items

The final section of system.twmrc discussed here controls the items on the window manager's button menus. First, the mouse buttons are "bound" to certain menus with lines in the form

```
Button1 = : root : f.menu "defops"
Button3 = : root : f.menu "defprogs"
```

(On a Macintosh, "Button1" is the mouse button and "Button3" is the Command key plus the mouse button.)

Subsequently, the items on the menus are defined. The "defops" menu definition has the form

```
menu "defops" {
"Operations"            f.title
```

```
"Move"                  f.move
"Size"                  f.resize
"Minimize"              f.iconify
"Maximize"              f.fullzoom
"Raise"                 f.raise
"Lower"                 f.lower
"Tile"                  f.menu "tile"
""                      f.nop
"Focus"                 f.focus
"Unfocus"               f.unfocus
"Show Iconmgr"          f.showiconmgr
"Hide Iconmgr"          f.hideiconmgr
""                      f.nop
"Kill Process"          f.menu "kill"
"Close Window"          f.delete
}

menu "kill"
{
"Use only to close processes that"          f.nop
"have hung.  Data may be lost."             f.nop
""                                          f.nop
"Kill A Process"                            f.destroy
}
```

The defops menu illustrates how a menu cascade is constructed. The "Kill Process" entry calls f.menu "kill." The menu "kill" is defined immediately thereafter.

The “defprogs” menu has the form

```
menu “defprogs” {
“MENU”                  f.title
“”                      f.nop
“Xmag”                  f.exec “xmag”
“”                      f.nop
}
```

This version of the MI/X server for Macintosh does not support launching X clients from a TWM menu. You will thus NOT be able to modify the defprogs menu definition by adding a line in the form

```
“Menu Label”   f.exec “myprogram”
```

TNTSERV.INI

The values in TNTSERV.INI control settings for the MI/X server. The TNT products for Macintosh use the MI/X server as a host environment. The TNTSERV.INI file has the form:

```
# ‘#’ is a comment line marker
#
#     MicroImages X Server (MI/X) settings file (TNTSERV.INI)
#
[Files]
WManRCFile=tntserv.twm
```

```
[XSERVER]
ScreenWidthMM=169
ScreenHeightMM=127
CloseOnMenuExit=Yes
AskOnClose=NO
MSWindowBorder=Yes
BitBltOverride=64
RootColor=0 0 151
MultipleMonitors=No

# Remote startup parameters, can be overwritten in TNTstart command line
ServerName=
Port=4321
Username=guest
Password=
```

The **WManRCFile** keyword in the [**Files**] section tells TNT which window manager resource file to use. Notice that the value "tntserv.twm" points to the TNTSERV.TWM file described in the previous section.

The values in the [**XSERVER**] section are set in the MI/X tab of the Support / Setup / Preferences process. Refer to the TNT Reference Manual for further information. The values related to remote startup are set automatically by TNT's remote login dialog.

TNTPROC.INI

The last control file is TNTPROC.INI, which records default values for each of the TNT processes. For example, the [**tntdisp**] section records the state and preferences from your most recent use of the Display Spatial Data process. In any process, when you move and resize windows, TNT records their position as a new default in TNTPROC.INI, so that the next time you use that process, you will find everything the way you left it.

Most of the values in TNTPROC.INI are thus maintained automatically by the TNT processes. Other settings are changed by the Support / Setup / Preferences process.

Upgrades and Updates

New Quarterly Releases

When you receive a new quarterly release of the TNT products, the install process lets you select the target folder for the installation. In most cases, you should just select the same folder that contains your exisiting TNT product files. That way, all of your user preferences will carry over to the new version.

As an alternative, you may consider installing the new version to a new folder and "start clean." Then you have the option of using the old version alongside the new version during a transition period (you want to work quickly with the old, familiar features for a while until you have time to learn the new features). Of course you need 100Mb of disk space for the new version and the new version will not use your existing setup preferences, so for most users, MicroImages recommends installing each new release to your existing TNT products folder.

Software License Key Upgrade. When you renew your subscription to the TNT products, the install process opens a window and asks you to enter an authorization code to enable your key for the new version. Enter the code exactly as it appears on the authorization notice that you receive from MicroImages.

Upgrades

The software license key distributed with the TNT professional products is programmed to support the version number and the product level and peripheral options you purchased. MicroImages, Inc. makes it easy to extend your product subscription for a newer version, and to move to a higher product level, for example, when you add a special new peripheral device to your configuration.

When you purchase a new version or product level, MicroImages, Inc. will fax you an option enable code. Select Enable Options... from the

Support menu. Enter your option enable code, and press the Apply button. TNT re-programs your key to support the new version or product level.

Updates

Between quarterly releases, MicroImages can ship you Macintosh update files on disk only by special arrangement with MicroImages software support. It is better to get updates from the MicroImages Internet site. (See below.)

Internet Updates

You can reach MicroImages on the Internet for email and file transfer. Our Internet address is **tnt.microimages.com.** Web access is available at www.microimages.com. FTP access is available at ftp.microimages.com. As a matter of security, our Internet computer is completely separated from our other machines at MicroImages.

Compressed Files. Files for the Macintosh are posted in the compressed .hqx format. After you download the files you want, use a Macintosh utility (such as Stuffit / Unstuffit) to decompress the files.

Web Site General product and company information is posted on the MicroImages Web page:

http://www.microimages.com

Our Web site also provides links to the tntpatch directories, so you can download fixes and updates through your Web browser rather than using an FTP command line interface. (See below.)

FTP You can use FTP (File Transfer Protocol) to send and receive files. You can send MicroImages sample data to accompany error reports, and you can also receive files of new features or fixes. Use the command

ftp ftp.microimages.com

and log in as user **anonymous** with the password equal to your email address.

• **Send** Please send your files to the **/pub/incoming/<yourname>** directory. Use the mkdir command to create a directory in /pub/incoming for your files. Please remember to notify MicroImages software support by email or FAX saying where you put your files. Also include a readme file that explains why you are sending the file. You may send **tar** and **zip** compressed files if you wish. Do not send data files by email. All files not

placed in a <yourname> directory under /pub/incoming will be deleted.

• **Receive** In some cases, fixes and updates will be posted in directories specific to individuals:

/pub/outgoing/<yourname>/<files> (as arranged)

Download both the executable module (compressed in .hqx format) and the needed.hqx file which contains reference information and other system replacement components.

Other general fixes will be posted for each supported platform:

/pub/tntpatch/win32	32-bit Windows 95/98 and NT (Intel)
/pub/tntpatch/nt_alpha	DEC/Alpha Windows NT
/pub/tntpatch/linux	LINUX PC (Intel)
/pub/tntpatch/linux5	LINUX PC (2.0.36 kernel)
/pub/tntpatch/ppc	Macintosh PowerPC
/pub/tntpatch/sparsol2	Sun workstations, Solaris 2.x
/pub/tntpatch/osf1	DEC/Alpha OSF/1
/pub/tntpatch/hp	Hewlett Packard workstations
/pub/tntpatch/rs6kppc	IBM RS/6000 PowerPC workstations
/pub/tntpatch/sgi	Silicon Graphics workstations

Please check with software support before copying any fixes for your computer. Not every client needs every fix that is posted. Often, special fixes have not been thoroughly tested, and they may cause unforeseen problems elsewhere.

FTP presents a command line in the form

ftp>

You can read all about FTP in the help facility on any UNIX system. Use the UNIX manual command:

man ftp

Common FTP commands:

binary tells ftp to use binary mode. Use binary before you send or receive any files.

bye ends this FTP session.

cd *directory name* changes to the directory specified

dir or **ls** lists the files in the current directory on the remote machine (tnt).

get *filename* retrieves the specified file to your Internet host.

help lists the major FTP commands.

mget *filenames* same as get but transfers multiple files and allows wild

cards.

mkdir ***dirname*** creates a directory (same as DOS).
prompt toggles prompting for each filename.
put ***filename*** sends one file to the remote machine.
pwd shows you what directory you are currently in.

Email You can also send email to MicroImages. However, please continue to conduct business transactions such as purchases and upgrades by FAX or phone. Do not send data files as email attachments. When you report an error by email, be sure to include all the information requested on the sample **Software Problem Report** forms included in your TNT Products shipping materials. Also remember to include your name and company. Without this information we may be unable to reply, fix the problem, or know where to send the correction. Contact software support at **support@microimages.com.**

TNT product information can be requested by sending email to
info@microimages.com

FREE Upgrade

Please take a few moments to fill out the Product Registration Form located in the middle of this booklet. All clients who register their professional TNT product receive their first quarterly upgrade from MicroImages FREE.

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. TNTedit can access geospatial data in a wide variety of commercial and public formats.

TNTview TNTview has all the same powerful display features for complex visualization and interpretation of geospatial materials as TNTmips. TNTview is perfect for those who need flexible access to the TNT project materials but 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 contain multiple versions of the TNTatlas software so that a single CD can be used on any popular computing platform.

TNTserver TNTserver lets you publish TNTatlases on the Internet or on your intranet. Navigate through massive geodata atlases with your web browser by using the free, open-source TNTclient Java applet (or any custom applet you create) to communicate with TNTserver.

TNTlite TNTlite is a free version of TNTmips, TNTedit, and TNTview for students and professionals with small projects. You can download TNTlite for your computer (about 100MB) from MicroImages' web site, or you can order TNTlite on CD-ROM (shipping charges apply).

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