INSTALL UNIX

UNIX

Installation and Setup Guide

for the

TNT Products

Installation for UNIX

The TNT Products run on Windows, Macintosh and UNIX computers. This booklet gives you installation and configuration instructions for using the TNT products on UNIX computers. If you are installing the TNT products on a Windows or Macintosh computer, refer to the companion booklet 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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(See illustration, page 9)

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6 June 2001

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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 organization's computer support and training specialists. TNTlite users may contact MicroImages directly (preferably by email or FAX), 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 spatial 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, you need a Windows PC, or a Macintosh, or a UNIX workstation. Your computer needs 16 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 key supplied by MicroImages, Inc. The software license key attaches to a serial port on your computer 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 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, and 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 you 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. You can get the current version of TNTlite from MicroImages. 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 switch to 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 your TNT products authorized dealer to upgrade to a full TNT system.

Step 1

Software License Key Installation

The first step in installing the TNT products is 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 software license 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 software license 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 UNIX computers is labeled “SERIAL.” Be sure to attach your key to the right kind of port. The install process looks for the key and does not let you install the TNT professional products if it can’t find the key. If your key is labeled "PARALLEL", "USB", or "ADB," contact MicroImages software support: (402) 477-9562 (voice), (402) 477-9559 (FAX), or support@microimages.com (email). Parallel, USB, and ADB keys do not work with UNIX computers.

If you plan on moving your key from machine to machine, you may wish to attach a short extension cable to the port and then attach the key to the free end of the cable. You can position the cable so the key is easy to reach. On the other hand, in high-traffic shops, you may wish to make the key more secure so it does not get moved to another machine without authorization. You can loop the extension cable back inside the computer case, out of sight. The physical flexibility of an extension cable will also be attractive to you if you have multiple applications on your computer that each require a key. Electronically, any number of keys can be connected to the same port without creating any mutual interference. But stacking multiple keys directly on a port could require more space behind the computer than the physical arrangement of your equipment provides. The use of a flexible extension cable allows a chain of keys of any length to be arranged according to the space available.

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/ME/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.

Key Details

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.

UNIX Keys

The software license key on a workstation can be connected only to a serial port. (Parallel port keys, which work with Windows will NOT work on a UNIX workstation.) The install process looks for the key and automatically records its location in your tntmips.ini file.

Locate your key in the TNT shipping materials and attach it to one of your workstation's serial ports. The install script should find your key automatically as long as your machine follows some common form of device naming convention, such as:

```
/dev/ttya       /dev/ttyb
/dev/ttym1      /dev/ttym2
/dev/tty0       /dev/tty1
/dev/tty00      /dev/tty01
```

Once it finds your key during the install process, the script automatically inserts the correct device name into your tnthost.ini file in the form

```
[KEY]
driver=/dev/ttya
```

The install script must find your software license key already attached to a serial port in order to create the correct entry in the tnthost.ini file. Moreover, if the install script cannot find your software license key, it will not offer you the option of installing TNTsdk (whether or not you have purchased it), since it needs the key to verify your product license.

Key Connectors

The serial port connectors on some computers do not physically match the TNT serial software license key. MicroImages supplies an adapter kit for UNIX workstations with the key. If you change computers and need a

different adapter, or if you want multiple adapters, ask for the kind you need from MicroImages software support: (402) 477-9562 (voice), (402) 477-9559 (FAX), or support@microimages.com (email).

Sun, SGI, Macintosh

The computer's serial connector accepts a circular male 8-pin DIN plug. The TNT key attaches to a male DB-25 socket. Thus, the adapter cable has a circular male 8-pin DIN connector on one end, and a male DB-25 connector on the other end. The lines in the adapter cable are assigned as follows:

signal	male DIN 8-pin		male DB-25 connector
DTR	1	——	20
CTS	2	——	5
TXD	3	——	2
ground	4	——	7
RXD	5	——	3
RTS	6	——	4
DCD	7	——	8
ground	8	——	17

(Shells grounded)

Hewlett Packard

The serial connector for the HP accepts a female DB-9 plug. The TNT serial key is a DB-25 female plug. Thus, the adapter cable has a female DB-9 connector on one end, and a male DB-25 connector on the other end. The lines in the adapter cable are assigned as follows:

signal	female DB-9 connector		male DB-25 connector
DCD	1	——	8
RXD	2	——	3
TXD	3	——	2
DTR	4	——	20
ground	5	——	7
	6	——	6
RTS	7	——	4
CTS	8	——	5
ground	9	——	22

(Shells grounded)

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 your computer type.

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

TNT products work well with the UNIX configurations found on most workstations. MicroImages does not recommend that you change any default UNIX configuration settings before installing the TNT products. Check with your UNIX system administrator if you have any system configuration questions.

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 on your system to choose the setting you want.

Project File Buffers

Most memory management issues are handled by the operating system of your computer. The TNT products are among the fastest and most efficient in the industry.

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 *Step 4: 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 may 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 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.

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 device drivers or 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 the TNT products 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.

Step 3

TNT Installation

The third step in installing the TNT products is to run the installation program for your type of computer. After you complete this step, proceed to Step 4: TNT Customization. If you are installing a new version of the TNT products over an existing version, refer to the chapter **Upgrades and Updates**.

IMPORTANT: Refer to the readme.unx file in the root directory of the TNT distribution CD-ROM. Instructions in that file may contain recent changes and always supersede the instructions printed in this section.

Install the Software

1. Mount the TNT CD-ROM on a local directory. Your mount command may have the form

   ```
   mount -t hsfs -o ro /dev/sr0 /cdrom
   ```

   LINUX users may get an error when trying to run the install script (or any script at all) from CD-ROM. If you use LINUX, mount the CD-ROM drive with a command in the form:

   ```
   mount -t hsfs -o ro -o exec /dev/sr0 /cdrom
   ```

2. su to root and change to the directory where the CD-ROM drive is mounted with a command in the form

   ```
   cd /cdrom
   ```

3. The TNT installation script gives you options to install TNTmips, the online documentation illustrations, and TNTsdk (if you purchased it). Enter the install command:

```
install -dest <name of TNTmips target directory>
```

NOTE: The installation script puts the TNT files into the directory you specify, NOT into a subdirectory. Your command should have the form

```
install -dest /usr/local/TNT
```

4. The install script presents a series of menu screens that ask you for your installation preferences. Select a menu option by typing its number at the prompt. You can also enter B, C, and H (for B]ack, C]ancel, or H]elp). After you finish with the menus, the script installs the options you have selected to your target device.

```
                TNT Products Installation Options

1  Install TNTmips (Includes TNTview, TNTatlas, and TNTedit)
2  Install TNTedit
3  Install TNTview
4  Install TNTatlas
5  Install Getting Started Booklets
6  Install Online Reference Manual
7  Install Internationalization Options
8  Install Sample Data Sets
9  Install Sample SML Scripts
10 Install TNTsdk
11 Install FLEXlm License Server on this machine for floating licenses

To install the above options, at the prompt, type the number(s) separated
by spaces for each option you wish to install

                Go B)ack  C)ancel  H)elp
```

5. As the install script uncompresses and copies the files, it displays a series of processing messages in the form

```
Installing TNTsdk executables...
Installing TNTview executables...
Installing TNTatlas executables...
Installing TNTmips executables...
Installing internationalization options...
Copying sample dataset files
Copying sample SML scripts
Copying Getting Started booklets

Creating startup script for TNTmips...
```

6. When it finishes, the script gives the message

```
Thank you. The options you selected should now be successfully installed
on your system. If you have problems with this software during or after
installation, please contact the MicroImages Software Support team at:

Voice: 402.477.9562
```

```
FAX: 402.477.9559
email: tech@microimages.com
```

7. When the installation script is finished, add the directory in which you installed tntmips into the path of each TNT user.
   ```
   set path = /usr/local/TNT
   ```

Starting a TNT Session

1. Log in as a TNT user (not the root).
2. If necessary, start the X Window System with the appropriate command for your environment. It may be a command such as 'startx' or 'openwin'.
3. Start TNTmips with the command
   ```
   start tntmips
   ```

   Or, start TNTedit with the command
   ```
   start tntedit
   ```

   Or, start TNTview with the command
   ```
   start tntview
   ```

   Or, start TNTatlas with the command
   ```
   start tntatlas
   ```

   You can start a TNTatlas session with a specially designated dataset with a command in the form
   ```
   start tntatlas myfile myobject
   ```

Begin with TNTmips by doing the exercises presented in the Getting Started booklet *Displaying Geospatial Data*. The entire series of Getting Started booklets is available in PDF format on the TNT Products CD-ROM disk A and on the MicroImages Web site:

http://www.microimages.com

Step 4
TNT Customization

The last step in installing the TNT products is to customize the control files for your TNT products. You may skip this step and use the TNT products with the default configuration first, and then return to this section on customization 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 auto-

matically, 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=c:
TNTPATH=
HTMLBrowser=

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

[KEY]
driver=KEYLOC
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. If the **TempFile** assignment specifies drive C: for temp files as illustrated, change the device designation to something suitable for your UNIX system. 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 your 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.

The **[TCPIP]** section is for Windows and Mac users.

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.

.twmrc

Your UNIX system can use the X Window System with any one of a number of window managers, such as TWM. MicroImages distributes its own X Server (MI/X) with the TNT products for Windows and Macintosh, and supplies TWM as its window manager. Thus, on Windows and Macintosh computers, the TNT installation includes a TNTSERV.TWM file, which duplicates the function of the .twmrc file on UNIX machines. It controls the appearance and features of the TWM window manager used by the TNT products on those platforms and illustrated in the TNT products Reference Manual and Getting Started booklets. NOTE: You can read all about TWM in your UNIX system documentation. Invoke the UNIX help manual entry for TWM with a command in the form

```
man twm
```

This section reviews the .twmrc (TNTSERV.TWM) settings as distributed with the TNT products. Of course, you can use any TWM settings you wish. This section is provided only to document the TWM configuration that MicroImages uses.

The sections of TNTSERV.TWM 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 .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"
```

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
}
```

The defprogs menu illustrates how any X process can be included on the mouse menu with the f.exec command. For example, you may have an executable X process called “myprogram” that you want to be able to run in the MI/X server by launching it from a TNT process. Modify the defprogs menu definition by adding a line in the form

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

Your modified version would look like this:

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

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 directory for the installation. In most cases, you should just select the same directory that contains your existing 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 directory 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 directory.

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 software license key for the new version. Enter the code exactly as it appears on the FAX 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 new hardware device to your configuration.

When you purchase a 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 repro-

grams your software license key to support the product level.

Updates

If MicroImages no longer ships updates between quarterly releases. Use internet FTP to get the latest files from MicroImages.

Internet Updates

If you are on the Internet or have email access to it, you can reach MicroImages directly for email and file transfer. Our Internet address is **microimages.com.** As a matter of security, our internet computer is completely separated from our internal network at MicroImages.

The MicroImages web site gives browser access to the most recent versions of each TNT executable. You can use your web browser to select and download the files you need:

http://www.microimages.com/freestuf/tntpatch/current

If you have access to FTP (File Transfer Protocol) you can use the tnt machine 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**, **hqx**, 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 and the needed.zip file (if there is

one), which will contain 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/rs6000	IBM RS/6000
/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 with ftp.

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.

prompt toggles prompting for each filename.
put *filename* sends one file to the remote machine.
pwd shows you what directory you are currently in.

You can also send email to MicroImages. However, please continue to conduct business transactions such as purchases and upgrades by FAX or phone.

Please use ftp to send data files; do not send data files by email. 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.

You can also fill out an error report form online:

http://www.microimages.com/support/eform.htm

Contact software support at **support@microimages.com.** General product and company information is posted on the MicroImages web site:

http://www.microimages.com

TNT product information can be requested by sending email to

info@microimages.com

Notes

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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