Networked License

Setup and Management Guide

for the

TNT Products

Installation for Enterprise Computing

The TNT products run on Windows, Macintosh and UNIX computers. This booklet gives you installation and configuration instructions for using the TNT products in a shared network environment with a Multiple-User or Floating license.

For information on installing the TNT products with a single-user license, refer to the installation booklets in this series for Windows, Macintosh, or UNIX computers.

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

Key and License Information

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.

(1) **Single-User Professional License**. One software license key attaches to the computer and permits one user at a time to use the professional version of the licensed TNT product on that computer. The key may be moved from computer to computer. The TNT software may be copied onto multiple computers. The Single-User License is enabled by the software license key, which is available only from MicroImages or a MicroImages authorized dealer.

(2) **Floating Professional License.** One software license key attaches to a networked computer and a set number of concurrent users can run the licensed TNT product on any computer in the network. The software may be copied onto multiple computers. The Floating License is enabled by the software license key, which is available only from MicroImages or a MicroImages authorized dealer.

(3) **Single-User TNTlite License.** No software license key attaches to the computer and one user at a time can run the TNTlite version of any TNT product. The software may be copied onto multiple computers.

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6 June 2001

June 2001

IMPORTANT: Your hardware authorization 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 hardware 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.

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

> **Important**: *if you are installing a single-user professional TNT product, refer to the installation manual for your type of computer:* Windows Installation and Setup Guide, *UNIX Installation and Setup Guide, or* Macintosh Installation and Setup Guide.

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 run the TNT products with the Floating License on a Windows, LINUX, or UNIX computer, server and client machines all need a minimum of 32 Mb of RAM, a CD-ROM drive, and about 100Mb of free hard drive space.

Macintosh computers cannot be used in floating license configurations either as the license manager or as a client.

Install and set up the TNT products according to the instructions in this manual. The software license key attaches to the NT/2000, LINUX, or UNIX server and authorizes the TNT professional products for the license type, number of users, product level, special peripheral support, and special software (such as TNTsdk) that you purchased. 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 server,
> 3. Install the License Manager and TNT products
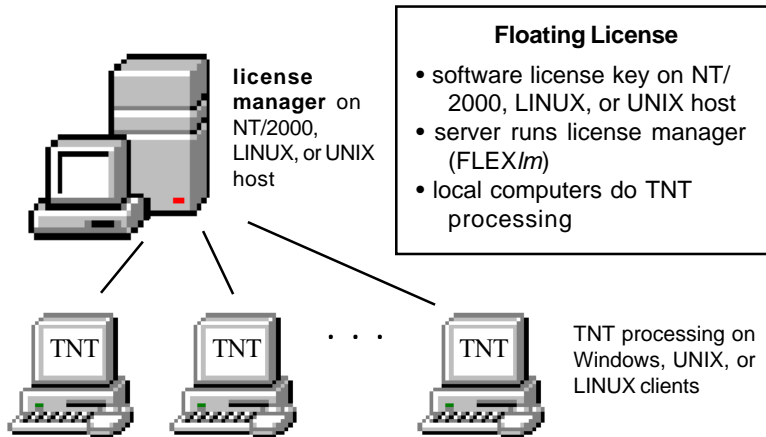> 4. Customize your TNT environment.

Please contact MicroImages software support when you need assistance:

> Phone (402) 477-9562,
> FAX (402) 477-9559, or
> email support@microimages.com.

The Floating License

The TNT products work with a floating license manager to support multiple users in a networked environment. In this model, the server has a software license key and License Manager software that supervises the number of authorized users.

license manager on NT/2000, LINUX, or UNIX host

Floating License
- software license key on NT/ 2000, LINUX, or UNIX host
- server runs license manager (FLEX*lm*)
- local computers do TNT processing

TNT processing on Windows, UNIX, or LINUX clients

In the floating license model, the TNT software resides on each user's computer and each client handles its own processing load.

The Floating License model uses network software (FLEX*lm*) to do what in the past many have done manually. That is, many organizations have chosen to install the single-license versions of the TNT products on several computers, and then physically move the software license key from computer to computer as the users need it. Thus, five keys could be moved between computers to support the work of ten users who divide their time among TNT and other tasks. The Floating License model "moves the keys" among a number of users with networked authorization software.

TNTlite

TNTlite is the free "lite" version of the TNT products (TNTmips, TNTedit, and TNTview). TNTlite has the same features and functions as the TNT professional products, except that the export processes are disabled and the size of the data objects is limited:

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 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.

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).

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

Install Software License Key

Connect the MicroImages Software License Key to the computer you have chosen as the license manager. After you complete this step, proceed to Step 2: Server Configuration.

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.

The TNT professional products are enabled by a software license key from MicroImages, Inc. The key for networked licenses contains sealed circuitry that is programmed to work with your version, number of users, and optional hardware. When a user on the network runs a TNT product, the system looks for the key on the server to verify product permissions and support.

Before you install the TNT professional products or the FLEXlm license manager, attach the software license key.

- The key for UNIX computers (except LINUX) is labeled "SERIAL."
- The key for NT/2000 or LINUX computers is labeled "PARALLEL."

If you have other, single-user/single-computer TNT products in your organization, you may be familiar with software license keys for other

computers. Macintosh and Windows 95/98 computers cannot be used as the license server for networked license models.

A summary of software license key types:

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.			

Windows NT and LINUX Keys

If you are using a Windows NT or LINUX machine for the license manager, the software license key must be connected to one of the server's parallel ports. The install process looks for the key and automatically records its location in your tnthost.ini file.

Windows NT requires special NT software drivers for the key. These drivers are installed automatically by the TNT products installation process. You can also install the drivers manually by runing the setup program in the /key/win_nt directory on the TNT Products "A" CD. Refer to the /key/README.TXT file on the TNT Products "A" CD for further information.

UNIX Keys

If you are using a UNIX machine for the server, the software license key must be connected to the server's serial port. The install process looks for the key and automatically records its location in your tnthost.ini file.

Locate your key in the TNT shipping materials and attach it to one of your server'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
```

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 adapter cable lines are:

```
          male DIN        male DB-25
  signal   8-pin          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:

```
        female DB-9         male DB-25
  signal  connector         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

Server Configuration

The second step in installing the TNT products is to configure the hardware and operating system of your server computer. After you complete this step, proceed to Step 3: Install FLEX*lm*.

In addition to configuring the server computer, you also need to configure each client computer. Windows and UNIX/LINUX computers that are served by a Floating License should be configured according to the instructions in the TNT Products installation manuals for those platforms (*Windows Installation and Setup Guide*, and *UNIX Installation and Setup Guide*). Macintosh computers cannot be used in a Floating License configuration.

To be used as floating license server for the TNT products, your NT W2000, LINUX, or UNIX computer needs at least 32Mb of RAM, a CD-ROM drive, and 15-20Mb of free hard drive space. TNT products work well with the UNIX configurations found on most of today's machines. MicroImages does not recommend that you change any default configuration settings before installing FLEX*lm* and the TNT products. Check with your system administrator if you have any system configuration questions.
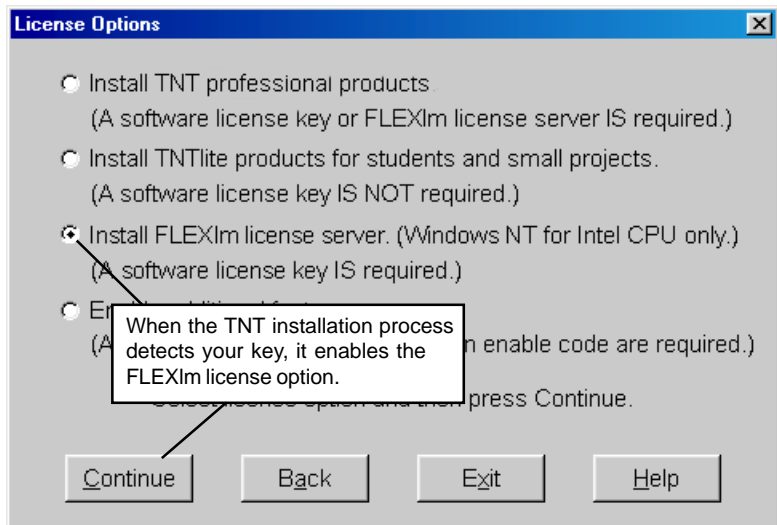
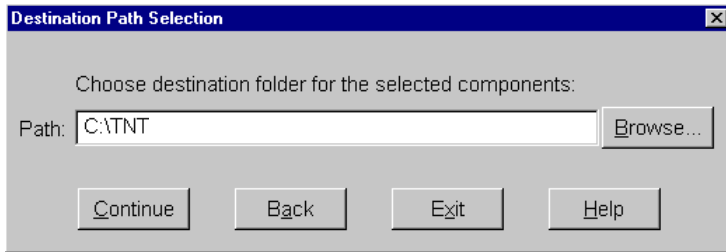Software Support: (402) 477-9562 FAX (402) 477-9559 Email support@microimages.com

Step 3

Install FLEX*lm*

FLEX*lm* is the License Manager software running on your server that handles requests from client machines as they ask for one of the authorized licenses in order to use a TNT product. Configure your network so that each TNT client machine in the configuration can see the server. The server must be running and visible on the network in order for the client computers to check out a license and use the TNT products.

The FLEX*lm* software is included on the TNT products CD. Run the installation process on the TNT products CD for your server. When the installation process detects your software license key, it enables the option to install the FLEX*lm* license server. Select the Install FLEX*lm* license option and click [Continue] as illustrated.

License Options   ⊠

○ Install TNT professional products
   (A software license key or FLEXlm license server IS required.)

○ Install TNTlite products for students and small projects.
   (A software license key IS NOT required.)

◉ Install FLEXlm license server. (Windows NT for Intel CPU only.)
   (A software license key IS required.)

○ En┌──────────────────────────────────┐
   (A│ When the TNT installation process │n enable code are required.)
     │ detects your key, it enables the │
     │ FLEXlm license option.   │ess Continue.
     └──────────────────────────────────┘

  [Continue]   [Back]   [Exit]   [Help]

Destination Path Selection　　　　　　　　　　　　　　　　　　**⨯**

Choose destination folder for the selected components:

Path: `C:\TNT`　　　　　　　　　　　　　　　　　　　[Browse...]

[Continue]　　[Back]　　[Exit]　　[Help]

The next dialog window lets you specify the target directory for the FLEX*lm* software. Choose a directory (such as c:\tnt) and click [Continue]. The installation process copies FLEX*lm* to your server and puts a FLEX*lm* icon in your Control Panel.

NOTE: If a FLEX*lm* icon does not appear in your Control Panel, you can alternatively launch the FLEX*lm* License Manager applet by double clicking on the file FLEXLM.CPL, which you will find in FLEX*lm*'s home directory.

> **Note:** Complete online documentation for
> FLEX*lm* is available on the Web at
> **http://www.globetrotter.com/manual.htm**

Configuring FLEX*lm*

FLEX
lm

FLEXlm
License
Manager

On Windows NT, you can open FLEX*lm* with its icon in the Control Panel. (Alternatively you can launch the FLEXlm License Manager applet by double clicking on the file FLEXLM.CPL, which you will find in FLEXlm's home directory.)
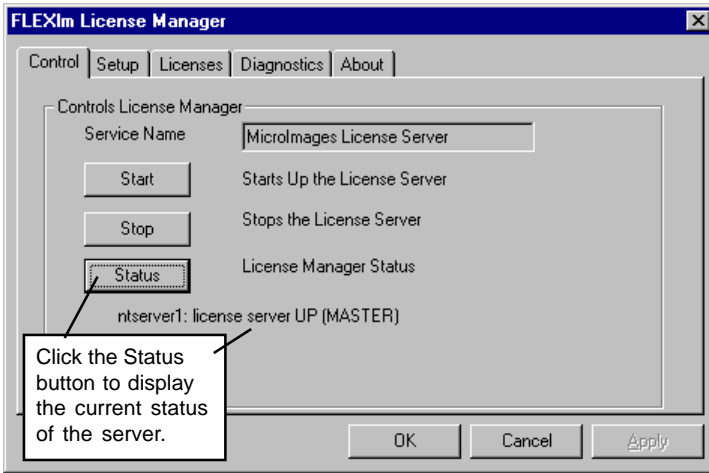
The FLEX*lm* License Manager window presents five tabbed panels.

The Control Tab The Control tab offers buttons to Start, Stop, and display the Status of the Lincense Manager. The Service Name text box should say MicroImages License Server. When you click the Status button, a text message reports the current status of the server (in this illustration: "ntserver1: license server UP (MASTER)").

The Setup Tab The Setup tab determines the location of the FLEX*lm* component files. The Browse button associated with each file lets you assign it a directory location. Unless you have a complex cofiguration (such as if FLEX*lm* serves other products in addition to the TNT products), leave these files in the default directory.

The component files work together to communcate with clients when

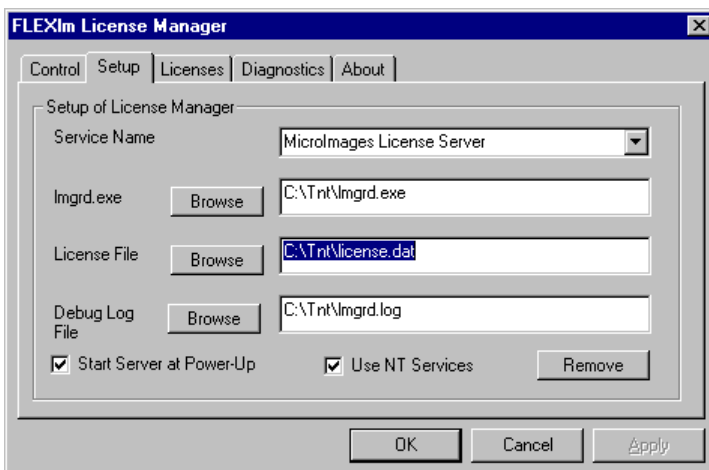Click the Status button to display the current status of the server.

they ask for a product license, and to check out and record license requests. The component files are created on the server automatically when you install FLEX*lm*.

lmgrd.exe is the *license manager daemon*, which waits for clients to request a license. Lmgrd.exe can run only on the SERVER node specified by license.dat.

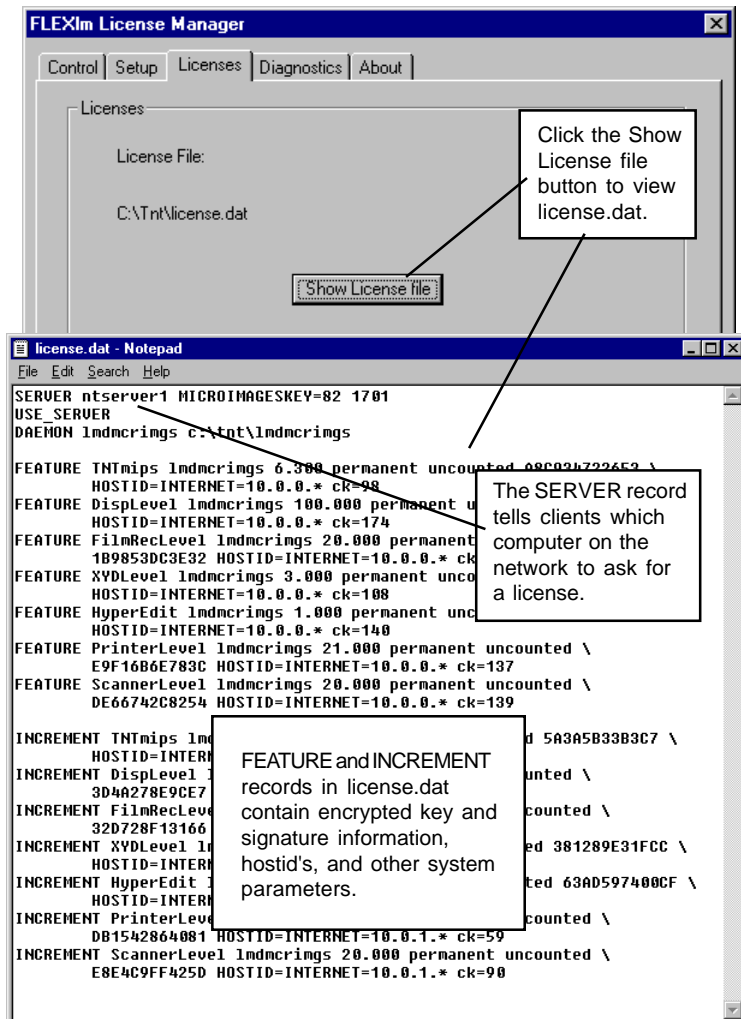**license.dat** is a text file that defines the license controls that work with your software license key.

On the *server* computer, license.dat is used to control the programs, features, and number of licenses in use.

On each ***client*** computer, a copy of license.dat is used to tell the client which machine on the network to ask for a license to run a TNT product.

License.dat contains encrypted information. Do not make any changes to the information in license.dat unless you need to change the SERVER name on a client computer (described later). The Licenses tab (see below) lets you view and edit the contents of license.dat.

lmgrd.log is a text file that contains a record of license activity.

Click the Show License file button to view license.dat.

The SERVER record tells clients which computer on the network to ask for a license.

FEATURE and INCREMENT records in license.dat contain encrypted key and signature information, hostid's, and other system parameters.

You may need to examine `lmgrd.log` in order to debug problems or review the usage patterns of the clients in your system.
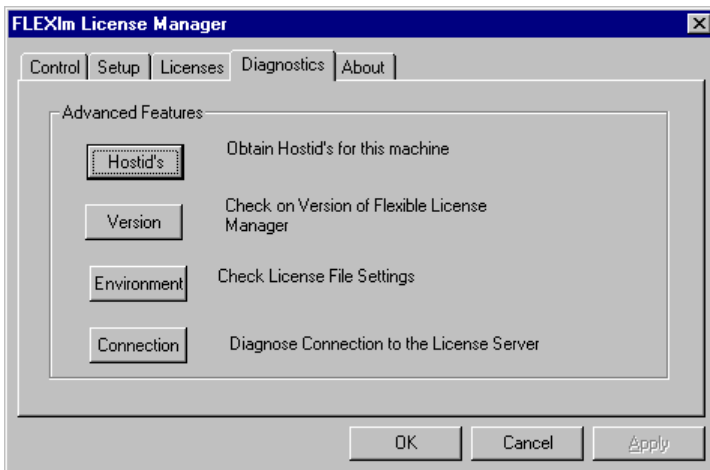
The checkbox **Start Server at Power Up** makes the FLEX*lm* licenses available on your network whenever the server computer is on. If for some reason you want to limit the times when the TNT product licenses can be checked out, turn off this checkbox. Then you will have to start FLEX*lm* explicitly in the Control tab each time you want to enable license access.

The Licenses Tab The Licenses tab lets you view the `license.dat` file. Click the Show License File button to view the contents of your `license.dat` file. `License.dat` exists on the server computer and also on each client computer. The client system looks at the SERVER record in the local copy of `license.dat` in order to know which machine on the network to ask for a license to run a TNT product. Thus, the SERVER record must contain the network machine name of the FLEX*lm* server. (As illustrated, "ntserver1").

The SERVER record has the machine name
of the computer running FLEX*lm.*

The easiest way to ensure that the clients all have the correct SERVER
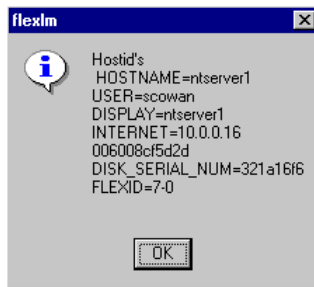
name is to copy `license.dat` from the server computer to each client computer after FLEX*lm* has been installed and configured on the server.
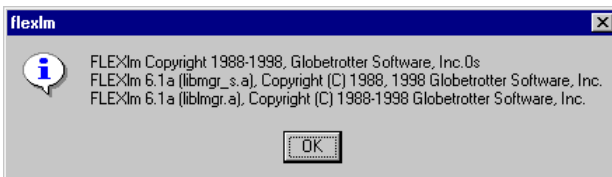
The FEATURE and INCREMENT records in `license.dat` contain information about the number of licenses that the system can grant. The FEATURE or INCREMENT values are encrypted, and proper values can be generated only by the TNT system.

The Diagnostics Tab lets you check the current values and status of several system features.

Hostids The Hostids button shows HOSTNAME, USER, DISPLAY, INTERNET, DISK_SERIAL_NUM, and FLEXID values. These values are set by startup, installation, and login routines. The HOSTNAME is assigned by the `license.dat` file (described above) and locks FLEX*lm* to that computer host. USER locks FLEX*lm* to this user name. DISPLAY locks FLEX*lm* to the specified display. INTERNET locks the software to an Internet IP address or group IP address. DISK_SERIAL_NUM locks the software to a PC whose C drive has that serial number.
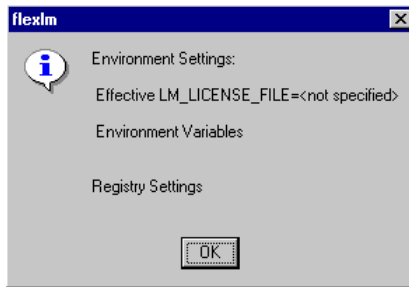
```
flexlm                                    ×
  (i)    Hostid's
          HOSTNAME=ntserver1
          USER=scowan
          DISPLAY=ntserver1
          INTERNET=10.0.0.16
          006008cf5d2d
          DISK_SERIAL_NUM=321a16f6
          FLEXID=7-0

                  [ OK ]
```

Version The Version button shows the software version of FLEX*lm*. You need to report the version number whenever you contact MicroImages or Globetrotter Software for technical support.

```
flexlm                                    ×
  (i)    FLEXlm Copyright 1988-1998, Globetrotter Software, Inc.0s
          FLEXlm 6.1a (libmgr_s.a), Copyright (C) 1988, 1998 Globetrotter Software, Inc.
          FLEXlm 6.1a (liblmgr.a), Copyright (C) 1988-1998 Globetrotter Software, Inc.

                  [ OK ]
```
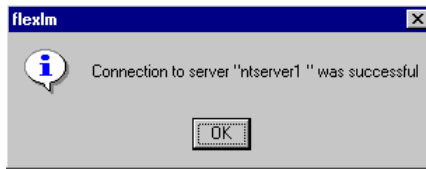
Environment The Environment button shows the location and values of system variables that FLEX*lm* might be using. LM_LICENSE_FILE is used only if you are using FLEX*lm* for other products in addition to the

TNT products. This file tells the system where to find control information for the various applications.
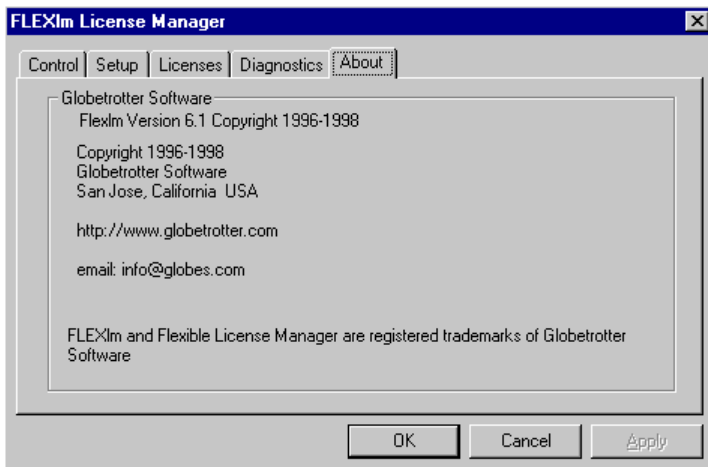
Environment Variables and Registry Settings are not required to use FLEX*lm* with the TNT products. Environment variables are normally used only for debugging or for changing license default location.

Connection The Connection button lets you poll the license server to see if it is currently active and responding.

About The About tab shows summary information about FLEX*lm* and Globetrotter software.

Managing the log file

When you start the license server (`lmgrd`) be sure that you direct the output into a log file where you can examine it. The log file often contains useful information. You should examine it when you have a problem, and be prepared to answer questions about it when you talk to a support person.

From time to time `lmgrd.log` (see above, page 20) should be pruned or deleted. These log files contain one line for each checkout and one line for each checkin. If you have a lot of license activity, these log files will grow very large. You will need to consider where to put these files and how often to delete or prune them. The license administrator can opt not to log messages to the debug log file if disk space is at a premium.

Note that the log files should be local files on the server machine(s) to avoid networking dependencies.
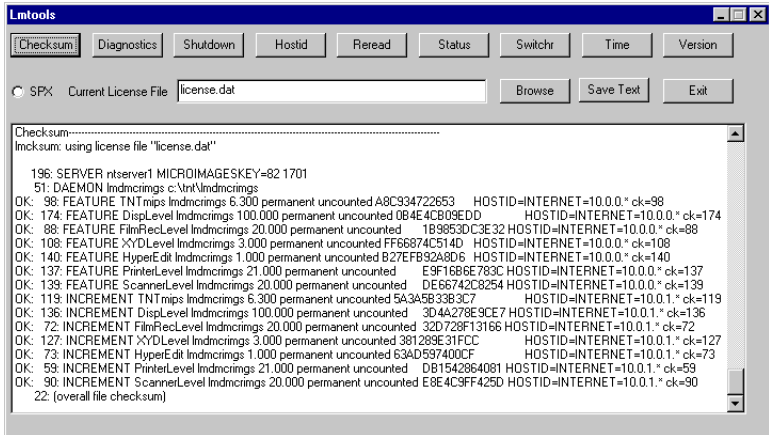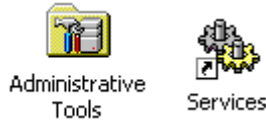
Administration Tools: lmtools.exe

The `lmtools.exe` program (LMUTIL in UNIX) gives you several administrator's utilities to help you manage and monitor FLEX*lm* behavior. you can start, stop and configure FLEX*lm* license servers, get system information, including hostids, get server status, and more.
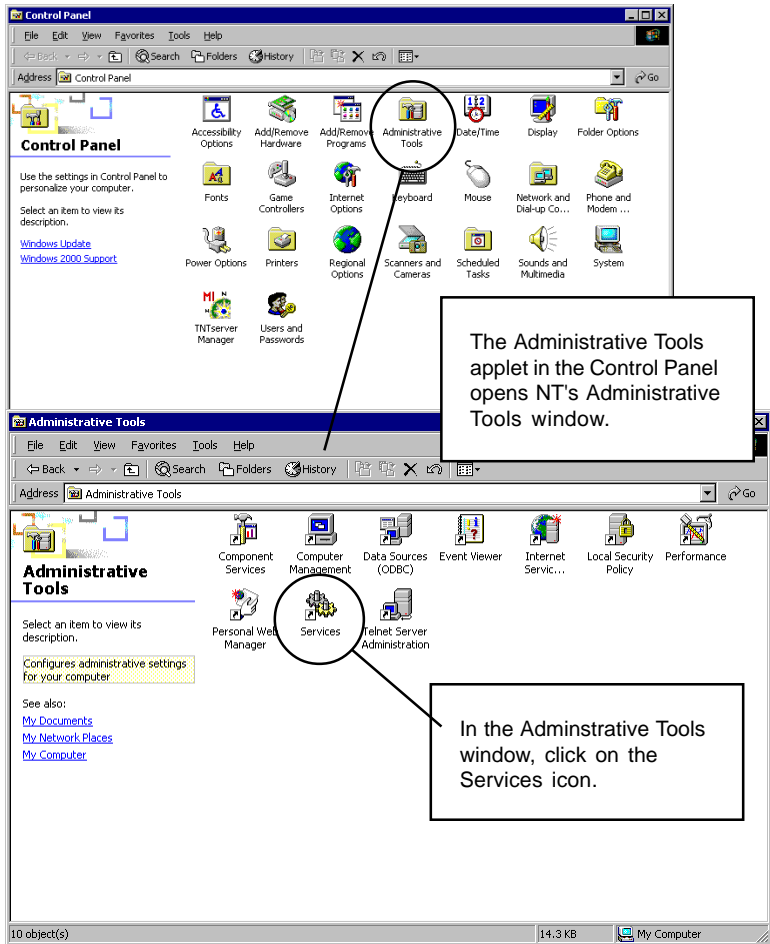
Specify the name of the license file in the Current License File text box, and then click any of the tool buttons at the top of the window. The results of the Checksum utility is illustrated below.

Administration Tools

and NT Services

The Control Panel in Windows NT offers an Administrative Tools applet that give you access to NT's Services. The License Manager daemon (lmdmcrimgs) is is listed as one of the local Services. Click Administrative Tools in the Control Panel folder, and then click Services in the Administrative Tools window.
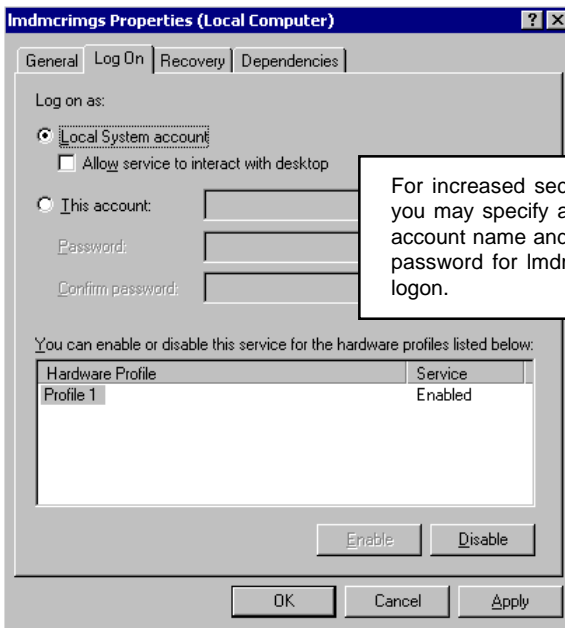

The Administrative Tools applet in the Control Panel opens NT's Administrative Tools window.

In the Adminstrative Tools window, click on the Services icon.

Select the MicroImages license manager daemon (lmdmcrimgs) from the list in the Services window.

NT opens a Services window that lists all the Services in your NT environment. Select the MicroImages license manager daemon (lmdmcrimgs) from the list. NT opens the lmdmcrimgs Properties dialog.

Use the **General** tab of the lmdmcrimgs Properties dialog to specify the

You may specify Automatic, Manual, or Disable Startup types.

Display Name, Startup Type, and Status of the license manager. There is generally no reason to change the **Display Name**. You may change the **Startup Type** if for some reason you do not want license manager to start automatically every time the host computer restarts. You can elect to start the license manager manually, or you can disable it.

Use the Start, Stop , Pause, and Resume buttons to turn the license manager off and on. If, for example, the license manager does not seem to be responding, you might want to Stop it, and then Start it again.
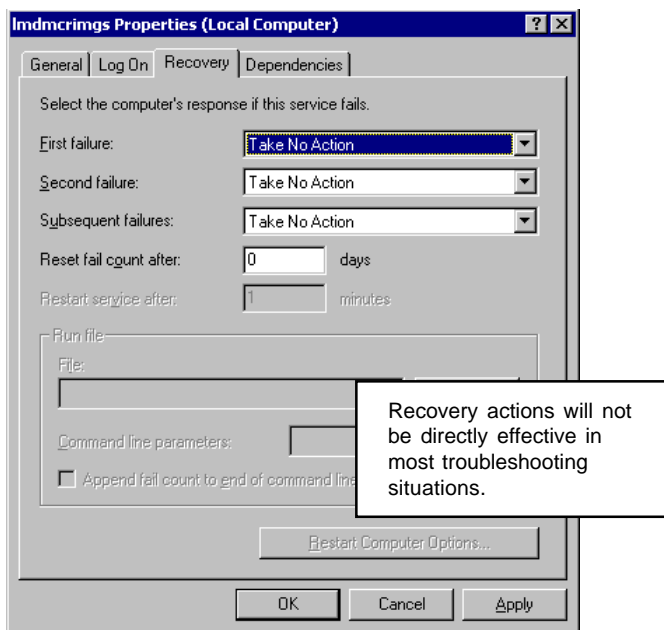
The **Log On** tab of the lmdmcrimgs Properties dialog lets you choose whether to log on as a Local System account or as a specific user. Specify a particular account and password if you want to restrict adminstrator access to authorized users only.

The Log On tab also lets you enable lmdmcrimgs for only certain hardware profiles. Use these controls only if you have multiple configuration profiles defined for your host computer.

The **Recover** tab of the lmdmcrimgs Properties dialog lets you choose how the system should respond if lmdmcrimgs fails. As illustrated,
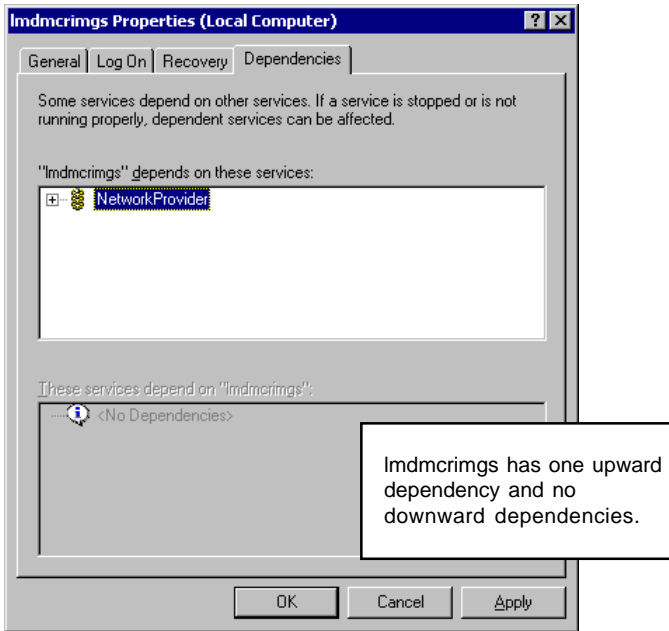
MicroImages recommends that you use the Take No Action settings. In very unusual troubleshooting or network circumstances, you may experiment with other settings, but in most configurations, you should expect than any problems you have will not be directly affected by changing these settings.

Recovery actions will not be directly effective in most troubleshooting situations.

The **Dependencies** tab of the lmdmcrimgs Properties dialog shows how lmdmcrimgs relates to other services in your NT environment.

lmdmcrimgs has one upward dependency: NT's Network Provider. Thus, if there are any problems with Network Provider, lmdmcrimgs will also likely have problems.

lmdmcrimgs has no downward dependencies. Thus, if there are any problems with lmdmcrimgs, other services will not be affected.

lmdmcrimgs has one upward dependency and no downward dependencies.

After you have finished installing and configuring FLEX*lm* on the host computer, you are ready to proceed with the installation of the TNT products on each client computer.
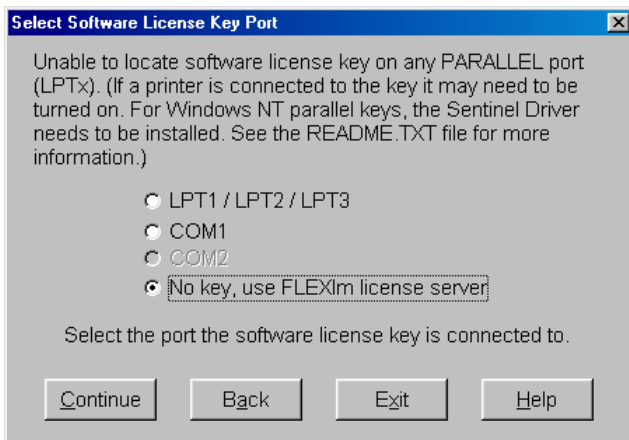
Step 4

TNT Installation

The fouth step in installing the TNT products is to run the installation program for each client computer. After you complete this step, you can customize the TNT settings for each client computer. To customize settings, follow the customization instructions for each computer type by referring to the instructions in the appropriate installation booklet (Windows Installation and Setup Guide, or UNIX Installation and Setup Guide). The local customization settings and files for each client computer are completely independent of the type of license being used.
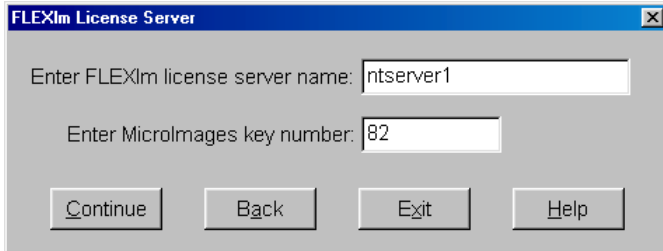
Install TNT on Each Client

Install the TNT products on each client computer according to the instructions in the appropriate installation booklet (*Windows Installation and Setup Guide*, or *UNIX Installation and Setup Guide*). When the TNT products installation process cannot find the MicroImages software li-

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cense key on the local machine, it opens the Select Software License Key Host dialog illustrated. Click the radio button for No key, use FLEXlm license server.

When you select that option and click [Continue], a dialog window opens that asks for the server name and key number:
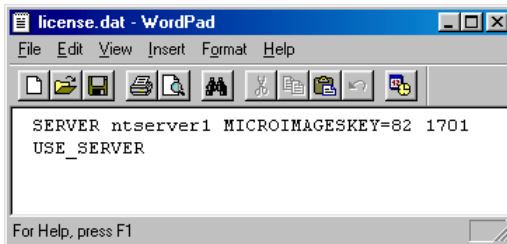

The license server name must be the network name of the license server host computer,

Local license.dat

Each client machine needs its own local copy of license.dat so it knows where on the network to look for the FLEX*lm* server each time it starts a TNT product.

The installation process creates a local copy of license.dat when you select the option "No Key, Use FLEXlm license server" as described above. The installation process uses this information to create a very simple local license.dat file:

You may also replace or restore the client's license.dat by making a sraight copy of license.dat from the server computer. Put the local copy of license.dat into the client's TNT directory.

If you switch a client computer from using its own dedicated software license key to using the networked license on your host computer, be sure to create (or make the appropriate changes to) the client's license.dat file. You may also need to modify the [KEY] section of the client's TNTHOST.INI file:

```
[KEY]
SerialNumber=3609828
#driver=LPT
TNTlite=0
RVCLiteProtectionLevel=0
```

Remove or comment out the driver line so that TNT no longer looks on the local port for a key.

TNT Customization

After you install the TNT products on a client computer, you can customize its TNT settings. To customize settings, follow the customization instructions for each computer type by referring to the instructions in the appropriate installation booklet (*Windows Installation and Setup Guide*, or *UNIX Installation and Setup Guide*). The local customization settings and files for each client computer are completely independent of the type of license being used.

Upgrades and Updates

New Quarterly Releases

When you receive a new quarterly release of the TNT products, use the the install process on each client machine and select the target directory for the installation. In most cases, you should just select the same directory that contains the existing TNT product files. That way, each user 's preferences will carry over to the new version.

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 products key for the new version. Upgrade the key on your host computer. Enter the code exactly as it appears on the FAX that you receive from MicroImages. Then install the new TNT products on each client computer.

Updates

You can always use internet FTP to get the latest updates and patches from MicroImages. Install them on each client machine as needed. You will have no problems unless you try to install an update that crosses a version boundary beyond the version your software license key supports.

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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