

# ***RASTRAC***<sup>®</sup>

## Vehicle Tracking Software

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### Product Information

MANNING NAVCOMP, INC.<sup>SM</sup>

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MANNING NAVCOMP INCORPORATED<sup>SM</sup> is a premier software and system integration company in the mobile asset management and vehicle tracking field. In this letter I'd like to tell you a bit about our company and our work.

MANNING NAVCOMP<sup>SM</sup> was founded in 1993 in Dallas, Texas. Our RASTRAC<sup>®</sup> Automatic Vehicle Location software, with hundreds of users worldwide, has been chosen by both governments and industries alike as the most flexible AVL solution on the market.

The Senior Engineering Staff at MANNING NAVCOMP<sup>SM</sup> has over 40 years combined experience in Software Development and Systems Engineering. This experience includes the development and integration of digital communications systems, target tracking systems, and state of the art control of distributed communication and surveillance platforms. Most of this experience has required a willingness to respond quickly to customer requirements and delivery schedules. Our Senior Engineering Staff are degreed professionals in Electrical and Computer Engineering, Computer Science, and Mathematics. Our company facilities, located in the Texas Hill Country outside of Austin, Texas, are equipped with the latest software, computing, and communications equipment.

We believe that in today's business world, where efficiency is paramount, mobile fleets desperately need automated tools that are both powerful and easy to use. We built RASTRAC<sup>®</sup> from the very beginning, to be simultaneously powerful and pure in design, and we still live by that selfsame philosophy. You'll know what I mean when you fire up your new RASTRAC<sup>®</sup> system.

As I write this, RASTRAC<sup>®</sup> systems are making money for their operators in 27 countries around the world. We've been fortunate to make friends with almost every one of our customers. We're here to help our customers. The conviction runs deep at this company: When you invest in a RASTRAC<sup>®</sup> system, *you're giving us the opportunity to work on your support staff.* It is our privilege to provide you with technical support. I must say it again - **at this company, customer support is a *privilege*, not a burden.**

Thank you for your interest in RASTRAC<sup>®</sup> and our company. We look forward to being of service to you.

J. L. Manning  
President  
MANNING NAVCOMP INC.<sup>SM</sup>

## RASTRAC<sup>®</sup> MX Technical details

RASTRAC<sup>®</sup> MX is a modern and professionally written software system. It is written in the C++ programming language for full 32-bit capable Windows<sup>®</sup> 95/98/NT operating systems.

### What kind of computer system will I need?

- 200 MHz Pentium<sup>®</sup> Processor
- 64 MB RAM (minimum)
- 17" Monitor
- PS/2 Mouse
- 4 MB V-RAM on 3D Video Card
- 1.44MB Floppy
- Audio Card
- CD-ROM Drive
- 4 GB Hard Drive (minimum)
- 28.8 Kbps Modem (for cellular-based systems or Internet viewing)
- MS Windows<sup>®</sup> 95, 98 or NT

### What training can MANNING NAVCOMP, INC.<sup>SM</sup> provide?

User/dealer training programs provide users and system technicians with both theoretical concepts and practical information on the operation and maintenance of the RASTRAC<sup>®</sup> fleet management systems. These programs are scheduled on an as-needed basis.

### What if my company requires on-site support?

We are happy to provide on-site support by a factory representative.



## Mobile Data

Every day mobile data is becoming more and more common in commercial vehicles. The ability to send data to vehicles out in the field is an invaluable tool for tough jobs like dispatching and invoice processing. This functionality can be incorporated into almost any system regardless of the type of communication that you're using.

### Can I send text messages to my vehicle?

Yes, *RASTRAC*® has the ability to interact with a mobile data terminal in each of your vehicles. Select the vehicle, type in your message, and with the click of a button, the message is sent.

Your driver can then respond with a text message or simple "status" reply. No more having to write down directions or the address of the next stop. It is conveniently displayed on the driver's terminal.

There are a number of mobile data terminals available today, from a simple "status" terminal to a ruggedized laptop. No matter what your company's needs are, *RASTRAC*® can be configured to work with your specific equipment.



### What if my drivers need a map display in the vehicle?

A laptop installed in your vehicle running *RASTRAC*® can show your driver exactly where he is. Your dispatcher can then send an address to the vehicle that will immediately display a point in the truck.

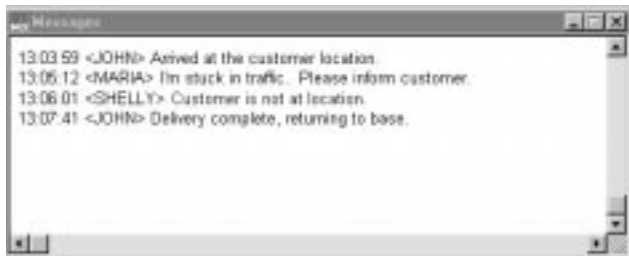
### What about a credit card reader?

From credit card or bar code readers to printers, *RASTRAC*® can be configured to work for you. Imagine

your driver being able to take the customer's credit card, swipe it, enter an amount, and in a few moments get approval with a printed receipt for the customer to sign.

### Can *RASTRAC*® work with my dispatch program?

Yes! If your dispatch database program operates in Windows® 95/98/NT and is compliant with Windows® *Open Database Communication* protocol (ODBC), *RASTRAC*® can work with it to make your dispatching a snap. A customized plug-in will allow both programs to interact and share data.



## Do I really need a Fleet Tracking System?

If you have vehicles out in the field, the answer is emphatically YES!

It was just a few years ago that business owners were saying to themselves "Things have been running just fine. Do I really need a computer to run my business?" Today, you wouldn't dream of operating without one!

GPS tracking and AVL systems have been around for a number of years. Until now, the drawback has been the high cost. *RASTRAC*® is designed to bring this indispensable technology to fleets of any size. Most systems will pay for themselves within months.

## Why Choose *RASTRAC*®?

### *RASTRAC*® is the most flexible software package on the market.

You shouldn't have to modify your daily routine to accommodate your tracking system. *RASTRAC*® can be configured in any number of ways to create a customized software package designed to fit your business operations.

### *RASTRAC*® is network ready.

Many software packages have added networking as an afterthought. *RASTRAC*® was designed *from the ground up* to operate over a network. Its unique design allows any number of computers running *RASTRAC*® to be linked over your company's local or wide area network or even over the Internet.

### You don't have to be a "Computer Geek" to use *RASTRAC*®.

All menu items, toolbars, etc... are designed to be easy to understand and use. Individual operator log-ins allow each operator to customize *RASTRAC*® to his/her personal preferences. Full, on-line help is just a "click of a button" away!

### *RASTRAC*® is not a tracking service. *You own it!*

Your system tracks your vehicles directly and does not depend on a tracking service company which is not directly involved in your company's operation. *RASTRAC*® is your *long-term* fleet tracking solution.

### *RASTRAC*® is communication independent.

Your vehicle can be tracked (with the appropriate hardware) over commercial radio, cellular telephone, CDPD (Cellular Digital Packet Data) or even satellite communications. You can even mix and match these communication technologies on the same system. Wireless communication is a fast-moving industry. With *RASTRAC*®, you will never have to change software to fit your communication utility.

### *RASTRAC*® is map independent.

The map database is completely accessible to you, so you can add new maps, updating your particular database to satisfy the demands of your application. You can even use your own scanned paper maps.

### *RASTRAC*® will grow with your business.

Much like your web browser, if specific functionality needs to be added into your system, off-the-shelf or customized software plug-ins can easily be added to your system.

### Service that can't be beat

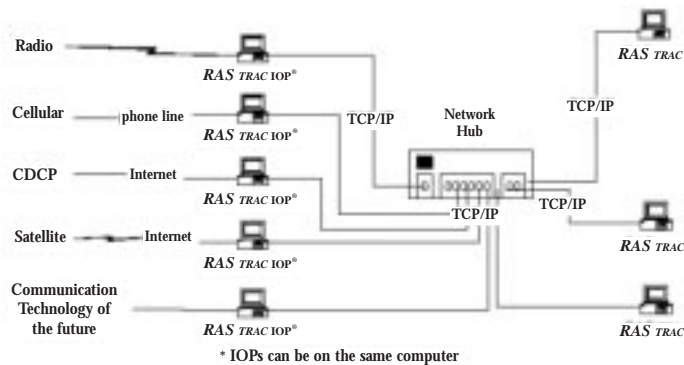
MANNING NAVCOMP™ provides service and support that is unmatched in the fleet tracking industry. Our friendly knowledgeable staff is eager to answer your questions.



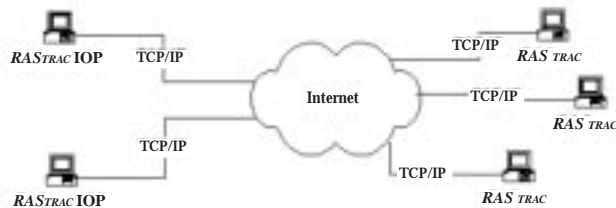
## How RAS<sup>TRAC</sup> Works

Each vehicle that you track will have a self-contained GPS/AVL unit installed in a secure location such as under the dash. The GPS receiver in the device uses the position from the GPS satellites to calculate the vehicle's position on the earth. It then reports this information back to the base station via a communications link. This link can be commercial radio, cellular telephone, CDPD (Cellular Digital Packet Data), or a low-earth orbit communications satellite. RAS<sup>TRAC</sup> can be easily configured to use combinations of different devices... even on the same computer. This allows maximum flexibility in your tracking system.

Once the vehicle location information is sent from the vehicle to the RAS<sup>TRAC</sup> base station, it is processed by the RAS<sup>TRAC</sup> Input/Output Processor (IOP). The IOP converts this information into a TCP/IP packet that is sent to the main RAS<sup>TRAC</sup> program (viewer). Because TCP/IP is a standard network protocol available to all Windows computers, multiple RAS<sup>TRAC</sup> viewers and IOPs can be networked together.



TCP/IP also is the protocol that the Internet uses. With the proper setup, you can view your vehicles via the Internet... from anywhere in the world.



## Server Configuration

All functions are easily configured to your particular company's needs and can also be uniquely tailored to each client's individual RAS<sup>TRAC</sup> serial number.

### Settings

- Set up the list of vehicles allowed for each client. Keep other clients from seeing vehicles that are not theirs.
- Limit the maximum number of days for which a client can retrieve data. This avoids "loading" the server with excessive requests.
- Set Auto Update to automatically send all incoming vehicle updates to all valid connected users (live feed).

### Reports

- Printed client vehicle reports can be easily generated.
- Vehicle history report can be retrieved from the server by the RAS<sup>TRAC</sup> client for any time-period.

### Clients

- Each RAS<sup>TRAC</sup> client must have a valid serial number (stored in the hardware key of the client). This allows access only to valid client serial numbers.
- Client lists can easily be added or updated to allow addition of new clients as your business grows.
- Clients can easily be "cut off" for non-payment.

### Vehicles

- Custom settings allow only each client's unique IDs to be accessed from the server.
- Set the maximum number of vehicles per client allowed.

## Optional Accounting Server Option

The RAS<sup>TRAC</sup> AVL Server accounting option generates daily account reports of all client viewer logons, and the exact times that they collected vehicle data. These can be opened directly in Microsoft Excel<sup>®</sup> or other spreadsheet programs, or exported to your database. Consequently, it's very easy for the system operator to bill customers according to when they viewed vehicle data, and how much data they actually viewed.

Of course, the Server also matches each requesting viewer's serial number (embedded in all request messages) to the vehicle IDs he's requesting, granting him access only if they are registered to his serial number.

## Server Configurations

With the optional accounting package, custom configured accounting reports can be generated for each client. These allow the system operator total flexibility in how each client is billed.

Additional functions can be custom-built into your server. Contact MANNING NAVCOMP<sup>™</sup> for further information about the RAS<sup>TRAC</sup> AVL Server.

## RASTRAC® AVL Server Plug-in

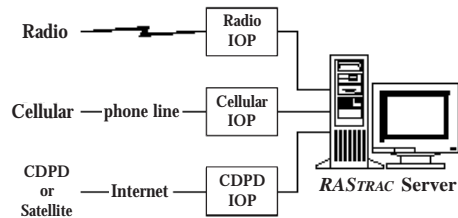
The RASTRAC® AVL Server provides a secure gateway through which RASTRAC® clients can view their vehicle tracks using RASTRAC® MX, RASTRAC® Lite, or RASTRAC® Browser. The RASTRAC® AVL Server allows client users to see what the vehicles are doing *now*, and see what they *have been doing* just by choosing a date/time range.

The RASTRAC® AVL Server optional accounting package empowers the system provider to sell AVL capability to his customers, billing "by the fix", and maintaining historical archives of his customers' fleets, freeing each customer of the effort of recording and archiving each vehicle's daily travels.

### From Vehicle to Server Host Viewer

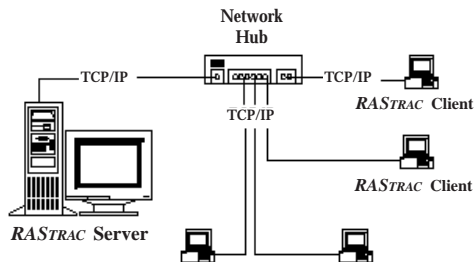
The RASTRAC® I/O Processors (IOPs) collect incoming vehicle data from the wireless communication media (e.g.,

Radio, Cellular, CDPD, Satellite) and present it onto the Server network in a standard format (independent of the wireless medium over which it was originally transmitted). The IOPs act as *information sources* to the network.



### What the RASTRAC® AVL Server does

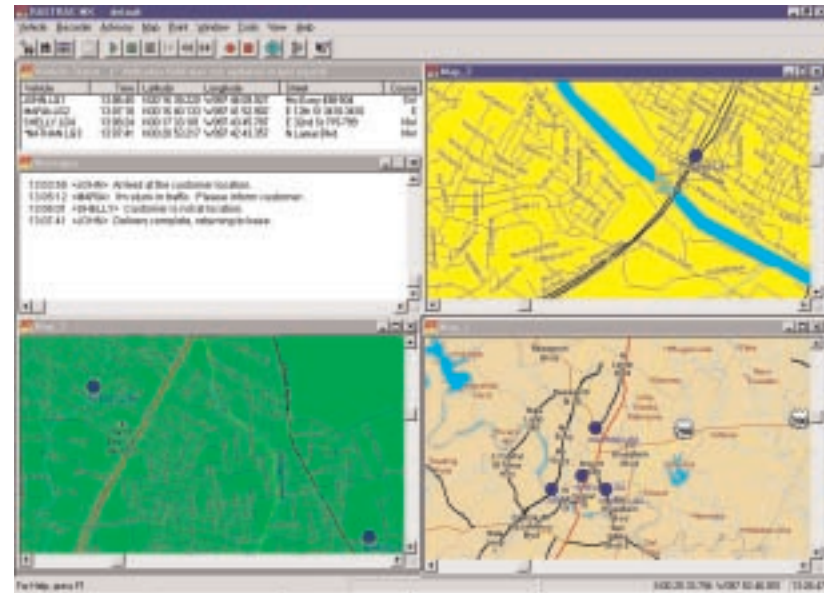
The RASTRAC® AVL Server accepts all incoming vehicle reports and stores them on its local disk, keeping each vehicle's reports organized in a date-structured hierarchy of disk folders. Thus, it has the power to go "back in time" and instantaneously access vehicle data from days, months, and even years past, at the simple request of a client customer viewer.



### What kind of mapping does RASTRAC® use?

RASTRAC® MX is available with a detailed street-level map for the entire United States. Since RASTRAC® MX provides support for most common vector map formats, as well as raster mapping, you are not limited to any specific map source. You have complete control of your mapping database and can easily add new maps into your system.

- Scan your own paper maps and use them with RASTRAC®
- Up to 25 different maps can be displayed simultaneously
- Supports most major vector image formats (ESRI shape®, MapInfo®, AUTOCAD®, Blue Marble, Microstation)
- Supports standard raster image formats (JPEG, GIF, TIFF, ADRG, TARGA, PCX, BMP, NOS, BSB/NOAA maritime charts)
- New maps can be defined in minutes
- Any area on the map can be "zoomed" simply by outlining the area with the mouse
- Special "points of interest" are automatically displayed
- Address "Lookup" function can pinpoint street addresses in the United States



### Can I see the status of each of my vehicles?

- Vehicle Status Window displays the street address
- System Log and Message Window displays system warnings, errors, messages and has a "Message Beep" option to alert the operator when a new message is received
- Speed is shown to the nearest tenth of a mile per hour

### How do I communicate with and control my vehicles?

- Supports multiple vehicle information data formats (FLEETWARE, Kenwood KGP, NMEA-0183, TAIP, ORBCOMM, CDPD)
- Custom formats can be easily added
- Simultaneous tracking of different communications technologies (radio, cellular, CDPD, etc..) on same workstation
- Vehicles can regularly and autonomously report their positions
- Automatic vehicle polling can be easily changed and customized to each vehicle
- One-button manual position query
- Type & click "chat" messaging for systems with mobile data terminals
- Point & click remote onboard equipment control (door locks, lights, etc.)

### How are my vehicles displayed on the map?

- Each vehicle can be represented by a unique user-defined icon, such as a "mug shot" driver photo
- Each vehicle can have its own track history "tail" that follows it dynamically
- Auto-track your chosen priority vehicle (keeps map centered on vehicle)
- You can instantly "find" any vehicle on any or all open maps
- Vehicle icons can change color when they don't report often enough (or get out of range)
- Vehicles can be simultaneously viewed on multiple maps

### Can I record/playback my vehicles' movements?

- Automatic recording of all vehicles' actions and travels
- Recorded vehicle tracks can be translated to text format for direct use with various off-the-shelf database, spreadsheet, and analysis software packages
- Playback uses *real-world* timing (just like it happened), not just position "dumps"
- Playback (fast-forward) at up to 1000 times the recorded rate
- Instantly draw a recorded route on a map
- Instantly "jump" to any recorded time of day
- Playback loop (up to 5 minutes) for detailed analysis
- Reconstruct entire fleet's composite performance by playing all vehicles back in simultaneous time-sync

### What are RASTRAC® advisories?

Advisories show you what your vehicles are doing. An advisory can display an image, play a sound file, or run a completely separate program. A status or emergency button in the vehicle, a door switch, or even driving in a specific area of town can trigger an advisory.

#### Examples

- Automatic work order/special instruction display when vehicle arrives at specified location(s)
- Multimedia alarm when vehicle enters or exits any special area or leaves its defined route
- Automatic multimedia alarm when driver presses a call or emergency/panic button
- Automatic multimedia notification when vehicle is started, drives too fast, or stays motionless for too long
- Vehicle icon changes color depending on the vehicle's status

### How can I use RASTRAC® to analyze my drivers' performance?

RASTRAC® can send position information directly to your database program, with the appropriate plug-in extension.

- Recorded vehicle files can be directly imported into your financial, accounting, and spreadsheet software applications
- Automatic text reports can be automatically generated for each vehicle every day

### Can RASTRAC® keep up with our company's expansion?

- You can add as many operator workstations as you need, with no customization
- RASTRAC® runs on any late-model desktop PC
- RASTRAC® is fully network-capable, including Internet support
- Recordable "macros" can package several operator commands together
- Complete RASTRAC® software technical reference is available
- User-defined events can be used to trigger multimedia advisories or other Windows® applications
- The RASTRAC® plug-in application interface insures years of service from one product

### How can RASTRAC® make my employees more productive?

- Personalized operator settings for each dispatcher
- Viewers can operate over the Internet (remote fleet viewing from anywhere in the world)
- Easy-to-use toolbars for common functions
- Complete on-line help and balloon help for all functions
- Integrated text "chat" with any driver