



RT Mapper Software Users Manual



GreenSeeker[®]
Variable Rate Application and Mapping System

740 South State Street Ukiah, CA 95482

tel 707-467-3747 fax 707-467-3750

toll-free 888-728-2436

www.ntechindustries.com

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GreenSeeker RT Mapper PDA software

This manual provides the user instructions for the “RT Mapper” software to collect data on the NTEch RT100 or GreenSeeker Handheld systems.

Introduction

The GreenSeeker RT Mapper software is designed to allow for easy data collection of GreenSeeker sensor data. The RT Mapper software is used to display the sensor vegetative index data output in real-time, log output data to a file, and give the user a visual indication of the area covered during use. Logged data is saved in a shape file format and may be easily transferred to a desktop computer for analysis.

Definitions of Terms

The following terms occur throughout this manual and in the RT Mapper software. Becoming familiar with the terms will make using the RT Mapper software much easier.

GPS. Global Positioning System. A system using satellites, receivers and software to allow users to determine their exact geographic position.

NDVI. Normalized Difference Vegetative Index. Commonly used to measure plant health and vigor. $NDVI = (NIR_reflected - Red_reflected) / (NIR_reflected + Red_reflected)$.

PDA. A portable computer and display. May be one of several devices, such as the HP iPAQ, or the TDS Recon Pocket PC-based PDA.

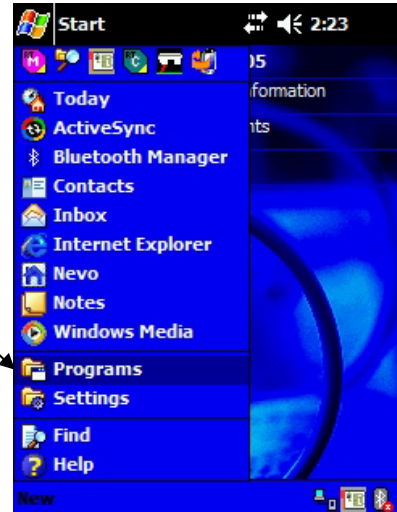
User Interface. A portable computer and display. May be one of several devices, such as the HP iPAQ, or the TDS Recon Pocket PC-based PDA.

Operating Instructions

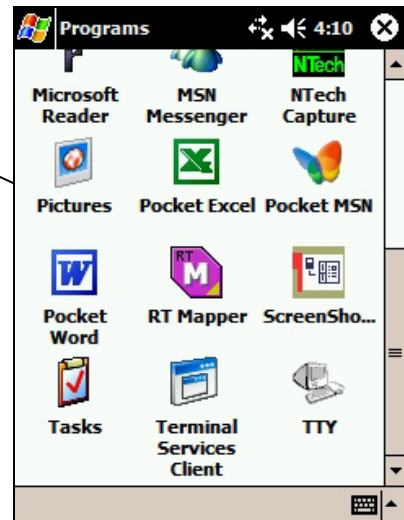
This software provides an interface where setup features are selected and operating parameters are entered. This software can also display the current system status and data logging capabilities.

Turn on the PDA.

Select "Start", then "Programs"



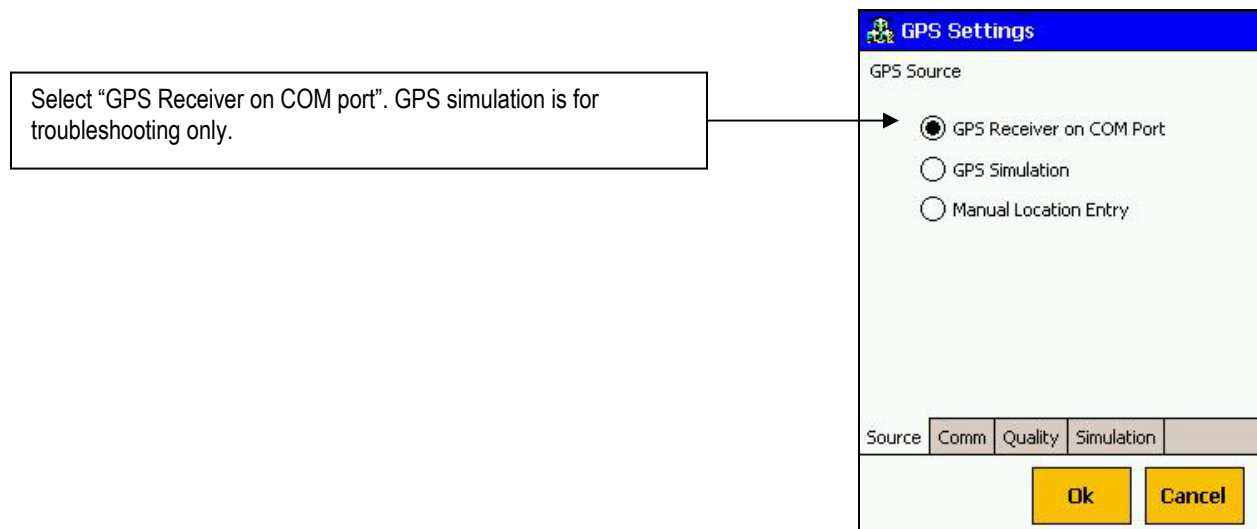
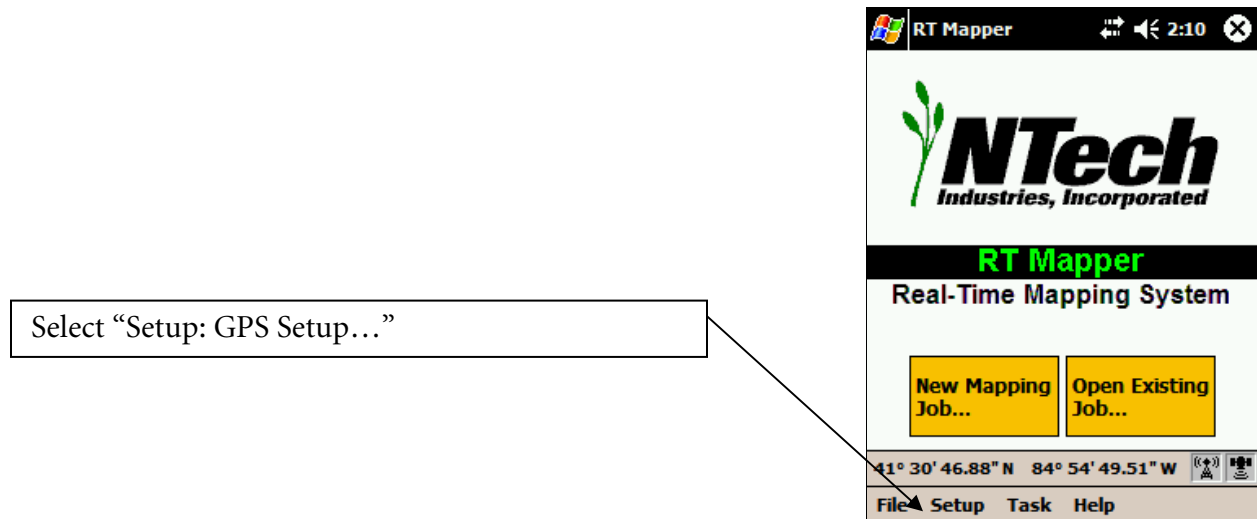
Select "RT Mapper" to launch the program. The "RT Mapper" startup screen should appear.



General Setup

The RT Mapper software communicates with two devices: a GPS Receiver, and the GreenSeeker sensor. Setup of the GPS and other configurations are normally done once and remembered by the software. If new equipment is used with the system, the setup parameters will need to be updated.

GPS Receiver Communication Setup



- Select the “Comm” tab located at the bottom of the “GPS Settings” screen.

Configure COM settings to match the communication settings of your PDA and GPS receiver (values shown are typical).

GPS Settings

COM Settings

Port: COM4: Serial Cable on

Baud Rate: 4800

Data Bits: 8

Parity: None


Stop Bits: 1

Source | **Comm** | Quality | Simulation

Ok Cancel

RT Mapper Data Communication Setup

Select "Setup: NTech RT200 Setup..."

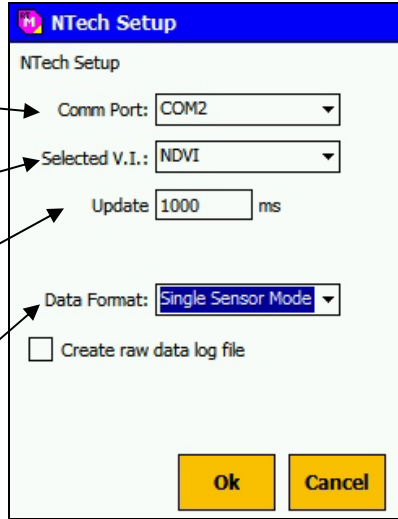


The default Port setting is COM1. The actual port used will depend upon you PDA and where you have connected the cable.

In the "Selected V.I." field, NDVI is the default setting and the only valid option.

The "Update" field is not changed; it should remain at the default of 1000ms.

In the "Data Format" field, Single Sensor Mode must be used to log Sensor data. The other options are to create simulated data **for troubleshooting only.**



Mapping

The RT Mapper provides the ability to map vegetative characteristics for crop analysis and historical data collection.

The image shows three screenshots of the RT Mapper application interface, each with callout boxes explaining specific features and steps.

Screenshot 1: Main Menu

- Callout:** Select "New Mapping Job..." or "Open Existing Job..."
- Interface:** The main menu displays the NTech Industries, Incorporated logo, the title "RT Mapper Real-Time Mapping System", and two buttons: "New Mapping Job..." and "Open Existing Job...". It also shows coordinates (41° 30' 46.88" N 84° 54' 49.51" W) and a menu bar (File Setup Task Help).

Screenshot 2: Map the Area Setup

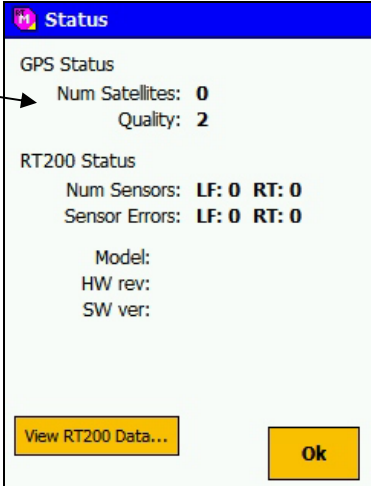
- Callout 1:** Drop down box to choose field, or Add/Edit fields
- Callout 2:** File name is created automatically. Starts with "M" for mapping file, today's date, and field at end of file name. Tapping small yellow box allows for changing location of file "save to" location. (See the *Data Management* Section for more information.)
- Callout 3:** Displays the setup configuration.
- Callout 4:** Input swath width of applicator for mapping screen display
- Interface:** The "Map the Area" screen shows a "Field Name" dropdown menu (set to "N 40"), a "Date" dropdown menu (set to "3 /10/05"), a "File Name" text box (containing "M20050310_N 40.rtj") with a small yellow box to its right, and configuration options for "NTech RT200" (COM2) and "GPS" (COM4), each with a "Config..." button. A "Swath Width" field is set to "60" feet. "Ok" and "Cancel" buttons are at the bottom.

Screenshot 3: Map an Area

- Callout 1:** Field name will be shown on upper left of screen
- Callout 2:** Tap the "Go" button and begin mapping. Tap "Stop" button when finished.
- Callout 3:** GPS will be shown on the Status Bar; tapping this area with a stylus will display a status screen.
- Interface:** The "Map an Area" screen shows the field name "N 40" in the upper left, "Go" and "Stop" buttons, and real-time data: "NDVI 0.00" and "GPS Speed 20.00". A map area is visible with a vertical line and a crosshair. The status bar at the bottom shows coordinates (41° 30' 56.96" N 84° 54' 50.30" W) and a menu bar (File Setup Task Help).

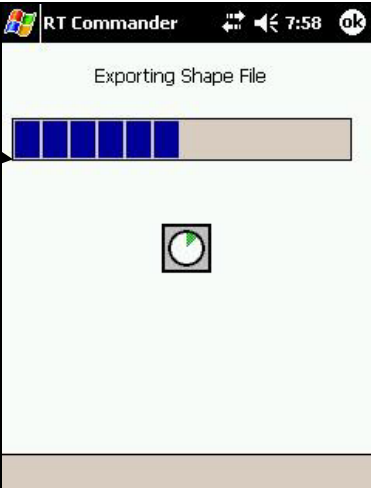
GPS detail status.

RT200 Status. This information is not applicable in RT Mapper.



- Select “Ok” to return to the “Map an Area” screen
- Select “File...Close Job” and select “Yes” to save application data, or “No” to resume.

When you close a job, this progress bar will show the progress of creating a shape file to be used to create a data map. Depending upon the duration you collected data, this could take several minutes.



Data Management

The default location for RT Mapper files is My Documents. If you wish to save these files in a different folder, you are limited to saving in a folder under My Documents.

The files created by RT Mapper are:

```
[M] [date] [filename].dbf*
[M] [date] [filename].fgp
[M] [date] [filename].fsn
[M] [date] [filename].gpe
[M] [date] [filename].rtj
[M] [date] [filename].shp*
[M] [date] [filename].shx*
```

**These files are typically used for creating maps of the data using a shape file format.*

Example of an application job file: M20050120_N40.rtg

CAUTION: If the PDA has not been charged for several days, data may be lost. To avoid losing data:

- Run the backup utility installed on the PDA, or
- Pull the data off the PDA and save it to your PC, or
- Copy the files to a removable memory card.

See your PDA for specific instructions.

Design Revisions

Continuing a policy of research and development, NTech Industries, Inc. and its subsidiaries reserve the right of price, product or design changes without notice of obligation.

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APPENDIX A: Resources

NTech Industries, Inc.

www.ntechindustries.com

HP iPAQ Support

<http://welcome.hp.com/country/us/en/support.html>

TDS Recon Support:

www.tds way.com/support/recon

Tel: (541) 757-7254

APPENDIX B: How To Re-install RT Mapper

Follow these instructions if the PDA has lost its charge, has had to be Hard reset, or if you need to install the factory installed software a new PDA.

- Connect your PDA to your computer using Microsoft ActiveSync™.
- Once Microsoft ActiveSync™ indicates that the PDA is connected, insert the NTech RT Mapper CD into your computer.
- From the Windows Taskbar, select **Start | Run**. Once the **Run** window opens, type:

D:\RT Mapper\Install.exe (where D: is the CD drive)

- Follow the on-screen instructions to complete the installation.
- Soft reset the PDA.
- If prompted to enter a registration number after running the program for the first time, please register your software at <http://www.ntechindustries.com/register/> and a registration number will be e-mailed to you.

If additional help is needed, call NTech Technical Support at 1-888-728-2436.

