Basic Use of the Trimble NetR8 Receiver

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BASIC USE OF THE TRIMBLE NETR8

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1. Configuring the receivers network settings

A new, out of the box, NetR8 receiver will have no network ethernet settings and will require you to configure the receiver by one of two ways.

A. USING THE FRONT CONTROL PANEL ON THE RECEIVER

The NetR8 has a front panel control interface that permits the user to set and check some basic functions of the receiver. With some simple button commands the user can check and set the ethernet settings of

the receiver. A reboot will be necessary to save the new settings by holding down the power button for three seconds.

The button commands to set the receiver's static ip address:

Enter > down arrow > Enter (DHCP should be disabled) > Enter > Right arrow (move cursors with the left arrow and right arrow and change numbers using the up arrow and down arrow) > Enter (set Subnet Mask using same button commands as with the IP address) > Enter (set Gateway).

NOTE - The IP setting on the receiver will display only if an ethernet cable connected to a network is plugged into the NetR8. If the cable is not attached then the receiver will display all zeros for ethernet settings.

B. USING WIN FLASH

Trimble's WinFlash utility has the ability to configure the ethernet settings of a NetR8 or change the receiver name. Run WinFlash with a serial cable connected to port 2 or 3 on the NetR8. WinFlash will guide you to set new ethernet settings and reboot the receiver. Winflash can also be used to set or change the system name of the receiver.

2. Connecting to the NetR8 via the web interface

Make sure that your NetR8 is set with a static IP and that your computer is on the same network as the receiver. For example, if your receiver is set to 192.168.1.2, your computer must be 192.168.1.x, where x must not be 2 (which is the address of the receiver). A good default in this case is 192.168.1.3. For instructions on how to change your computerâ€™s IP address, see Appendix A. Note that you will not be able to be on another network (wireless, LAN) while connected directly to a NetR8, so disable any active wireless connection.

1. Connect the NetR8 to your computer via an Ethernet cable. Some computers accept either straight or crossover cables, some accept only crossover cables.
2. Open a web browser (e.g. Mozilla Firefox).
3. Type the NetR8 IP address into the web browser address bar.

A â€œhomeâ€ screen for the NetR8 should appear in the web browser. On this screen are the NetR8 serial number, name and an list of menu options on the left side.

3. Configuring a NetR8 for operation

A. CONFIGURING A NETR8 VIA THE WEB INTERFACE

SYSTEM NAME AND SERIAL NUMBER

The system name is displayed on the title screen of the web interface. To change the system name select the "Receiver Status" menu and then choose the "Identity" sub-menu. The serial number of the NetR8 is printed on the upper right corner of the web interface. Check that the serial number is the same number printed on the outside of the receiver as shown on the home screen. Some NetR8's have serial number consistency issues.

FIRMWARE

To check the currently installed version of firmware, select the "Firmware" menu on the left. You can easily install a new (or old) firmware file by clicking the "Choose FIle" button and selecting the appropriate file from your computer. Once you have selected the file from your computer, click the "Install New Firmware" button. New firmware installation usually takes several minutes. All data on the receiver will be erased. When complete the receiver will reboot.

SETTING RECEIVER OPTIONS

The NetR8 has a number of optional functions that can be enabled using an activation code provided by Trimble. To review a list of the available and installed options go to the "Receiver Status" menu and select "Receiver Options". Most of the available functions come installed with a standard NetR8, however, some useful functions such as the â€œProgramatic Interfaceâ€ will have to be installed using an activation code. At the bottom of the list an input box is used to provide a long string of text characters for function activation. Enter the activation code and reboot the receiver to install the desired options.

DATA LOGGING

1. Select "Data Logging" form the left hand menu. The data logging status window will appear.
2. There are three data sessions pre-programmed in the Unavco configuration file. Only one of these is enabled (session "a," 30 second logging interval, 24 hour files).
    1. The sessions will have single letter identifiers that indicate the name of the directory on the receiver where they will be stored.
    2. "Schedule" indicates if the data are collected continuously or if the session is manually configured (i.e. once per day, once only, etc) and also shows file duration (1440 mins, etc).
    3. "Status" indicates whether or not a session is active. If it is, the directory to which the data is being logged will be displayed. The amount of data logged by the session will also be listed.
3. **To edit an existing session**, click on the letter identifier. You will enter the session logging configuration page.
    1. NetR8 receivers can log data in either T01 or T02 format. Both are proprietary to Trimble and can be converted to RINEX. Unavco uses T02 as the standard.
    2. Select the schedule and duration of your files (i.e. "Continuous/1440 sec" indicates that data will be collected non stop and stored in 24 hour files)
    3. The "Measurement Interval" refers to how often data are collected from the satellites.
    4. "Position Interval" is how often the receiver will calculate its estimated position (this is not necessary if you will be using high-precision processing software).
    5. Do not select "Smooth Phase" or "Smooth Pseudorange." These will alter your raw data.
    6. "Path Style" is the way in which your sub-directories will be named on internal memory.
    7. "Suffix" refers to the single letter identifier of the session that is visible on the data logging status page. Make sure that none of the sessions have the same identifier.
    8. Using the "Pool" dropdown menu, you can configure specific storage space on the receiver for the data session. Selecting "Delete when full" and then specifying the amount of space you would like reserved will cause the data to log to memory until the space is filled, after which the oldest files will be overwritten. Note that the maximum memory available on a NetR8 is 4 GB and that you can log multiple sessions at once.
    9. If you wish to have your data pushed to a computer via ftp or to an email account, be sure to check the appropriate box. For FTP, select "None (T01/T02 Files)" from the dropdown menu that appears. The remainder of the FTP parameters can be configured in the "FTP Push" submenu
    10. Click "ok" to exit back to the data logging status page.
4. **To create a new session**
    1. On the session logging status page, click the "New Session" button at the bottom.
    2. A new session logging configuration page will appear.
    3. Proceed as described above.

ANTENNA SETUP

Antenna information can be entered in the RINEX files after data collection. If you would like to enter the correct antenna type and height information into the receiver, you can do so under "Receiver Configuration" > "Antenna" in the left-hand menu.

INTERNET OPTIONS

You can configure the receiver's network settings on the web interface by selecting "Network Configuration" and then the "Ethernet" submenu. UNAVCO default settings for internet options are: IP address 192.168.1.2, MTU 1500, Netmask 255.255.255.0, Gateway 192.168.1.1, with all other fields left blank.

SECURITY

You can set up the NetR8 with different user accounts, each having specific privileges. Go to "Security" on the lefthand menu. The page will display the user accounts that have already been created. To create a new user, go to "Configuration" in the Security sub-menu. You will see fields to configure a new username, password, and privileges. There will also be a dropdown menu to enable or disable security. Do not enable if you do not know the passwords of the existing usernames.

CREATING AND UPLOADING A CONFIGURATION FILE

If you have multiple receivers that you would like to be configured differently from the Unavco standard configuration, you may wish to create, upload, and apply your own configuration file. The NetR8 is configurable with â€œclone filesâ€. A clone file is an ascii file in xml format. Once you configure a NetR8 to your liking, a clone file can be created, downloaded to your computer, and used to configure other NetR8 receivers.

To create a clone file and download it to your computer:

1. Configure a NetR8 to your liking
2. Select "Receiver Configuration" > "Application Files" from the menu
3. From the "Operation" dropdown list, select "Generate Clone File"
4. Type in a Filename and click the "Enable All" button. This will duplicate all parameters, including ethernet settings, in your new file.

5. Click "OK"
6. To download the new file to your computer, select "Download Clone File" from the dropdown menu. Choose the appropriate file and click "Ok"

To install a clone file on another NetR8:

1. From the drop-down menu (in "Receiver Configuration" > "Application Files) select the â€œUpload&Install clone fileâ€ option.
2. Choose the file from your computer and rename it if desired.
3. Note that the NetR8 has the option to keep the existing ip address or change the address to that which is specified in the clone file.
4. You can upload many different clone files onto a receiver and install just the file that you want to use at that time.

B. CONFIGURING A NETR8 VIA THE PROGRAMMATIC INTERFACE

The programatic interface on the NetR8 is accessed by sending HTTP commands to the receiver via the HTTP port (usually 80). On Unix based systems, HTTP commands can be sent using the â€œcurlâ€ operator. For example to display the serial number of the receiver enter:

curl 'http://192.168.1.2/prog/show?SerialNumber'

The output will need to be redirected from stdout to the screen or a text file.

Commands can also be sent directly from the web interface on the NetR8. In the left menu bar select the â€œProgramtic Interfaceâ€ option to view the programatic options available using the web interface. If the programatic interface option is not visible than the receiver option has not been enabled and requires an activation code to activate.

A list of programatic interface options are provided in six different catagories (Status, Satellites, Configuration 1, Configuration 2, Firmware, I/O). Under each category a number of programatic functions are displayed. To use a command, click on the desired function and click the <send> button at the top of the window. The screen will also display the HTTP code used to for the function and some

information about the receiver's current configuration.

4. DOWNLOADING DATA

Once you are connected to a NetR8 via the ethernet port you can access the internal file system of the receiver to download data files. If you are interested in downloading multiple files from the receiver's internal file storage, a FTP transfer is the most efficient and robust method. If you wish to download a small number of files then you can also use the receiver's web interface to initiate a download.

Make sure that your computer is properly configured with the correct network settings. i.e. if the NetR8 is configured with an ip of 192.168.1.2, then your computer should be 192.168.1.x (with x not being 2).

A. USING FTP

When using FTP to get files from the receiver, there are a few things to note.

1. Make sure that the FTP server is enabled under the "Network Configuration" menu on the NetR8.
2. Make sure that anonymous FTP access is allowed by going to the "Security" menu on the NetR8. In the drop down menu at the top of the security page, select "Enable with anonymous access," or "Disable." Either option will allow FTP access.

USING A FTP CLIENT- Most convenient for multiple files. FileZilla FTP client is recommended. It is available for free at http://filezilla-project.org/download.php

1. Make sure you are connected to the receiver with an ethernet cable and that your computer network settings are correct.
2. Open FileZilla, and in the box that says "Host," type in the ip of the receiver and click "Quickconnect"
3. The receiver files will appear under "Remote Site."
4. Double click on the file folder with a "/" after it. The system files will appear
5. Click on "Internal." The data directories by month will appear.

6. Go into the appropriate month folder and drag and drop the .T02 files that you want to the appropriate directory on your computer (listed under "Local Site" in FileZilla).

USING A GRAPHICAL USER INTERFACE DIRECTORY WINDOW (for Microsoft Windows)

1. Open any directory window (i.e. My Documents).
2. Enter the ip address of the receiver, preceeded by ftp:// in the browser field (i.e. ftp://192.168.1.2)
3. The system directories of the receiver will appear in the main window.
4. Click on â€œInternal.â€
5. The directories of data will appear by month
6. Enter the appropriate month directory.
7. You will see the raw .T0x files and other miscellaneous files and folders.
8. Highlight all of the .T0x files you want.
9. Drag and drop the files to your computer or copy and paste to your desired directory

USING A COMMAND PROMPT

1. Open a windows command prompt (Start -> Run -> type â€œcmdâ€), or a terminal if you have a unix based operating system.
2. Change to the directory where you would like the data to be downloaded (cd xxx. Make sure you enter the full path name).
3. Enter the commands as follows
    1. ftp xxx.xxx.x.xxx
    2. anonymous (the user name)
    3. hit Enter (no password needed)
4. You will now have the prompt â€œftp>â€ at the beginning of each line. Enter the commands as follows.
    1. dir (this will show a list of the directories on the receiver).
    2. cd Internal (changes into the directory where the data sub-directories are stored)
    3. dir
    4. cd 20XXXX (ie 201006 for June of 2010)
    5. cd a (or any sub directory that you wish to enter. Sub directories will be listed by letter, and are the individual data session indentifiers that you configured earlier)
    6. bin (to make sure that the files are downloaded in binary format)
    7. prompt (if you do not wish to be asked for download confirmation for each file) Note* you will not be able to download an active (currently logging file).
    8. mget *.T02 (downloads all .T02 data files in the directory)

B. USING THE WEB INTERFACE

1. Make sure you are connected to the receiver with an ethernet cable and that your computer is configured with the proper ip.
2. Open a web browser (Firefox preferred) and log on to the receiver
3. On the menu on the left hand side of the screen, select â€œData Loggingâ€
4. A submenu will open up. Select â€œData Files.â€
5. A list of folders, named by month, will appear in the main window. Go into the desired data directory.
6. You will see the directory for each session (by letter). Open the desired session directory
7. Select the appropriate data file to download by clicking on the file name.
8. The raw file will be saved to your computer.

APPENDIX A:

HOW TO CHANGE THE IP ADDRESS OF YOUR COMPUTER

A. IF YOUR COMPUTER IS A PC

1. Start>Control Panel>Network Connections>Local Area Connection (if another window doesnâ€™t open by double-clicking, right click and select Properties)
2. In the Local Area Connection Properties window, under the General tab, highlight â€œInternet Protocol (TCP/IP)â€ (to find this, scroll down under â€œThis connection uses the following itemsâ€). Select Properties.
3. Under the Alternate Configuration tab, select â€œUser configuredâ€ and set the IP address, Subnet mask, and Default gateway. Leave the rest blank. A sample configuration, which will allow you to connect to a NetRS with IP address 192.168.1.2, is:
    1. IP address: 192.168.1.3
    2. Subnet mask: 255.255.255.0
    3. Default gateway: 192.168.1.1
4. Select OK.
5. Select Close.

B. IF YOUR COMPUTER IS A MAC

In the top right corner of your desktop you will see an icon shaped like a fan. This represents the network of your computer.

1. Click on the network icon and scroll down to "Open Network Preferences"
2. In the dialogue box that appears, select "Ethernet" from the left hand menu
3. Next to the "Configure" option, select "manually" from the dropdown box
4. Configure the ip address, subnet mask and gateway as desired (see sample configuration above).
5. Leave the rest blank
6. Click on "Apply"
7. Look back at the left hand menu. You should see "Connected" directly below "Ethernet," next to which a green light should appear
8. Close out of the Network settings window