

HOWTO.1

Modem configuration and cable setups that work for various data transfer modes

Note : You don't have to mess with any of the internal register settings for the modes listed below! Note that the configurations described below have been tested on domestic phone lines. They may need some tweaking for international or noisy phone connections.

1. RedHat Linux 5.2 –US Robotics Courier V.Everything 33.6 Modem – Domestic phone line – US Robotics Courier V.Everything 33.6 Modem – RedHat Linux 5.2

The configuration described below assumes that a `mgetty` process has been set up on the remote machine to listen for calls through the serial port connected to the phone modem. It is *not* necessary to configure the point-to-point protocol (PPP) if all that is needed is remote login capability (using a dumb terminal connection) with no file transfer required. However, PPP is necessary to emulate a true TCP/IP connection (for telnet or ftp applications) through the serial port. Please refer to the *HOWTO.2* and *HOWTO.3* notes for details on how to install `mgetty` and PPP.

This configuration requires standard DB25-DB9 serial cables (null) between each modem and the computer to which it is attached.

Both the dial-out and dial-in modems must load the hardware flow control template when first turned on, i.e. dip switch 10 is off to load the factory default NVRAM &F1 template at power-on. However, if for any reason, you suspect that the NVRAM defaults have been modified, you must reset the template to its default values by using the Linux communication program to issue the command `at&F1&W` (this overwrites the "modified" &F1 template with the factory default &F1 settings). Then, power-cycle the modem and the default settings will take effect. Both local and remote modems should be configured identically.

The dial-in (remote) modem does *not* need to have auto answer turned on. The `getty` program running on the remote server is already listening to the port and will force the modem to answer when an incoming call is detected. However, having auto-answer on should not pose a problem either.

The following switch settings have been shown to work!

	1	2	3	4	5	6	7	8	9	10
OFF	X	X			X	X			X	X
ON			X	X			X	X		

2. RedHat Linux 5.2 –US Robotics Courier V.Everything 33.6 Modem – Domestic phone line – US Robotics Courier V.Everything 33.6 Modem – Trimble SSE/SSI receiver

Used to query/program/download a Trimble receiver with RFILE (Linux version number unavailable), or download with LAPDOGS v.2.0_BETA.

Settings:

This configuration requires a standard DB25-DB9 serial (null) cable between the local modem and the base computer, and a Trimble *remote* download cable type **21295** between the remote modem and receiver.

Both the dial-out and dial-in modems must load the no-hardware flow control template when first turned on, ie. make sure that dip switch 10 is *on* to load the &F0 template at power-on.

The dial-in (remote) modem must have auto answer turned on, i.e make sure dip switch 5 must be in the *off* position (don't ask why!) to have auto-answer on. Confirm this by making sure the AA (auto-answer) light is on.

The following switch settings have been shown to work!

	1	2	3	4	5	6	7	8	9	10
OFF	X	X			X	X			X	
ON			X	X			X	X		X

Notes:

Use the `-Matdt phone-string` option with any `rfile` command to query the Trimble receiver on the fly. To test LAPDOGS, check `/Data` directory and log file in `/Logs` to confirm download. Note that if only one file is found on the receiver, LAPDOGS will not download it!! If the link is non-functional, a time-out will occur after 30 seconds (issued by `rfile`).

3. RedHat Linux 5.2 –US Robotics Courier V.Everything 33.6 Modem – Domestic phone line – US Robotics Courier V.Everything 33.6 Modem – Turborogue SNR 8000

Used to log on to AOA Turborogue receiver to query/program/download receiver, or to download with GNEX.

Settings:

This configuration requires a standard DB25-DB9 serial (null) cable between the local modem and the base computer, and a serial DB9-DB9 null cable between the remote modem and the receiver.

Both the dial-out and dial-in modems must load the no-hardware flow control template when first turned on, ie. make sure that dip switch 10 is *on* to load the &F0 template at power-on.

The dial-in (remote) modem must have auto answer turned on, i.e make sure dip switch 5 must be in the *off* position (don't ask why!) to have auto-answer on. Confirm this by making sure the AA (auto-answer) light is on.

The following switch settings have been shown to work!

	1	2	3	4	5	6	7	8	9	10
OFF	X	X			X	X			X	
ON			X	X			X	X		X

Notes:

Issue the command `cu -l /dev/ttyS# -s 19200` and then type the command `atdt phone-string` to query or download the Turborogue on the fly. It may be necessary to press <enter> once or twice after a successful connection is established to get the Turborogue to send a login prompt. For GNEX automated downloads, make sure the file `modem.pl` has a patch for a Courier modem connection (look for `modem.pl.fix` in the same directory as `modem.pl`).

4. RedHat Linux 5.2 –Freewave DGR-115H Radio Modem – Wireless – Freewave DGR-115H Radio Modem – Trimble 4000 SSE/SSI receiver

Used to query/program/download a Trimble receiver with RFILE (Linux version number unavailable), or download with LAPDOGS v.2.0_BETA.

Note: This document contains outdated and offensive “master-slave” terminology. Within UNAVCO and in our in-house materials, we have replaced this with “Access point (AP) – Station/Endpoint (STA)”, but in manufacturer documentation and configuration software, the original usage will still remain when implemented.

Settings:

This configuration requires a standard DB9-DB9 serial (direct) cable between the local modem and the base computer, and a Trimble *remote* download cable type **21295** between the remote modem and receiver. Make sure the baud rate setting for the serial port of the receiver matches that of the remote radio modem to which it is connected.

Notes:

For a direct master-slave connection (mode 0) leave out the `-Matdt phone-string` option from the `rfile` command line to query the Trimble receiver on the fly. To test LAPDOGS, check `/Data` directory and log file in `/Logs` to confirm download. Note that if only one file is found on the receiver, LAPDOGS will not download it!! If the link is non-functional, a time-out will occur after 30 seconds (issued by `rfile`).

For *mode 6*, not use RFILE directly since the `-Matdt` option does not recognize the switchable master/slave option. Use LAPDOGS to make sure that the DTR is dropped properly and the base modem is left in a master/switchable mode after both a successful and *non*-successful connection. In the `xxx.site` file, make sure to use the appropriate string when prompted for the modem dialstring (e.g. `ATDT4` for the position in the call book to call, or `ATD5716909` for the specific modem serial number to call)

5. RedHat Linux 5.2 – Trimble receiver direct connection

Used to query/program/download a Trimble receiver with RFILE, or download with LAPDOGS.

Settings:

This configuration requires a Trimble remote download cable type **18827** between the computer and the receiver.

Notes:

Use the `-Matdt phone-string` option with any `rfile` command to query the Trimble receiver on the fly. To test LAPDOGS, check `/Data` directory and log file in `/Logs` to confirm download. Note that if only one file is found on the receiver, LAPDOGS will not download it!! If the link is non-functional, a time-out will occur after 30 seconds (issued by `rfile`).

6. RedHat Linux 5.2 – Turborogue receiver direct connection

Used to log on to AOA Turborogue receiver to query/program/download receiver, or to download with GNEX.

Settings:

This configuration requires a DB-9-DB9 *null-modem* cable between the computer and the receiver.

Notes:

Issue the command `cu -l /dev/ttyS# -s 19200` and then type the command `atdt phone-string` to query or download the TurboRogue on the fly. It may be necessary to press <enter> once or twice after a successful connection is established to get the TurboRogue to send a login prompt. For GNEX automated downloads, make sure the file `modem.pl` has a patch for a Courier modem connection (look for `modem.pl.fix` in the same directory as `modem.pl`).

Troubleshooting tips:

-if you get a message such as “device busy” or “access denied” when starting the communication program, make sure that permissions are set properly on the device file you are using for the connection (i.e. `/dev/ttyS#`). From root, issue the command `chmod a+rw /dev/ttyS#`. For dial-out access, you should not use a port which is being monitored by a `getty` process checking for incoming calls. The `getty` program controls the port it is listening to, and periodically resets permissions on the device file associate with the port.

-if, despite above fixes, the port remains inaccessible, see *HOWTO.5* for possible IRQ conflicts.