Information_for_troubleshooting_of_modem_connection_problems_1b

THE PURPOSE OF THIS DOCUMENT...
- This sheet is a useful reference when setting up commercial software to send text messages to RadioWorks pagers.
- Applications for pagers include: **Alarm reportering**, **Voicemail notification**, **Message delivery for Realtors**, **Etc.**

TAP PROTOCOL FOR PAGERS...
- Pagers accept telephone calls from analog modems using TAP protocol at 2400 baud, 7, E, 1 (or 300, or 1200 baud).
- TAP messages may contain up to 160 characters. One TAP call may contain messages for several different pagers.

HOW TO CONFIGURE <u>US ROBOTICS MODEMS</u> FOR TAP PROTOCOL...
- **Com port settings** for the PC**:**   38400, 7,E,1, Hardware handshake   .
- **Modem string** to access RadioWorks pagers: AT &F1 &C1 DT 480-2299 <enter>   .
- **Dip-switch settings** for **external** USR modems only. **U**=Up (off) and **D**=Down (on)
  1. **U** = DTR enabled, PC sends DTR signal   (D= ignore DTR)
  2. **U** = Verbal results   (D= numeric results)
  3. **D** = Enable result codes   (U= disable result codes)
  4. **U** = Echo keyboard AT commands   (D= disable echo)

  5. **D** = Disable auto answer   (U= enable auto answer)
  6. **U** = CD enabled, Modem sends CD signal   (D= CD always ON)
  7. **U** = Boot from Y or Y1 in NVRAM   (D= boot factory default configuration from &F0 in NVRAM)
  8. **D** = Enable AT command recognition   (U= disable AT command recognition)
- **Notes:**
  1. **38400** is the PC-to-modem **UART speed**, the modem will negotiate a 2400, 1200 or 300 baud **connection speed**.
  2. Other baud rates may be used but higher speeds like **115200 might be too fast** for older UARTS.
  3. Use **7** data bits, **E**ven parity, **1** stop bit, or else the connection will fail. **AT** denotes the start of a modem string.
  4. **&F1**=load the factory-provided hardware-flow-control template, **&C1**=DCD LED on with carrier, **DT**=tone dialing
  5. **480-2299** is the dial-access number for all RadioWorks pagers, **<enter>** denotes the end of a modem string.
  6. <u>External modems</u> use a "straight-through" serial RS-232 IEEE cable (pin-to-pin).
  7. <u>Internal modems</u> must be "installed" into Windows. To install, click on Start, Control panel, Phone & modem options.

HOW TO CONFIGURE <u>NON-US ROBOTICS MODEMS</u> FOR TAP PROTOCOL...
- Other modems may be used but RadioWorks cannot provide support. Try modem string: **AT &F DT 480-2299 <enter>**.

HOW TO CONFIGURE <u>HYPERTERMINAL</u> (FOR DE-BUGGING PURPOSES)...
- **Internal modems**:   **38400**,   Data = **Standard EC**,   Compression = **Enabled**,   Flow control = **Hardware**,   **7, E, 1**
- **External modems**:   **COM1**,   **2400**,   **7**, **E**, **1**,   Flow control=**Hardware**
- **All modems**:   **VT100**, **Use Windows drivers for printing**, Line delay = **50 ms**, Character delay = **5 ms**
- **HyperTerm BUG**: Select VT100 emulation, or HyperTerm will auto-detect 8N1 **and** over-write the 7E1 in any open .ht file
- **HyperTerm BUG**: HyperTerm can become corrupt and change 7E1 connections to 8N1. Re-boot Windows to fix this.

HOW TO SEND A TAP MESSAGE <u>MANUALLY</u> FROM HYPERTERMINAL (FOR DE-BUGGING PURPOSES)...
- Click: Connect   Type: **AT &F1 &C1 DT 480-2299 <enter>** (or send a ".txt" file with this string)
- See: CONNECT 2400/ARQ/MNP   Type: **<enter>**
- See: ID=   Type: **M <enter>**
- See: Enter pager ID(s):   Type: **12919 <enter>**
- See: Enter Alphanumeric Message: Type: **This is a test. <enter>**
- See: More Pages?   Type: **N <enter>**
- See: Good Bye +++ No Carrier   Click: **Disconnect**

WHAT IF THE <u>MODEM CONNECTS ONLY FOR A FEW MOMENTS</u>...
- (**1**) 8-N-1 is in use (use 7-E-1). (**2**) Serial **RS-232 cable is not pin-for-pin**. (**3**) Modem trying to connect above 2400 baud.
- (**4**) The modem is not displaying alpha result codes (the software may need this).

WHAT IF THE <u>MODEM CAN'T GET THE MESSAGE TO THE PAGER</u>...
- (**1**) **No modem string** is reaching the modem.   (**2**) **Incomplete modem string** (does not contain the &F1 command)
- (**3**) **No dial tone** available (bad physical connection, or another device on the same phone line is in use.
- (**4**) **Bad power supply**, the modem has an intermittent power connector, or has the wrong wall-transformer (if any).
- (**5**) **Wrong DIP-switch settings** (if any).   (**6**) The serial **RS-232 cable is not pin-for-pin**.
- (**7**) **Modem is using software-flow-control** and it received an Xoff, which is a Ctrl+S, (use hardware-flow-control).

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