

MacRATT with FAX

Terminal Control Software
for the Macintosh and the
AEA PK-232 Data Controller

User's Manual



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Getting Started with MacRATT

This manual does not attempt to explain your data controller or how to use it. When the data controller manual tells you, for instance, to "enter your call sign by typing MY <CALLSIGN>", you would turn to section 4-1 in this manual and learn how to enter commands. This goes for all modes (Packet, Morse, AMTOR, etc.) and all commands used in operating. Therefore, if you are unsure about AMTOR operation, read the AMTOR section in your data controller manual and apply the information with the techniques in this manual.

Also, this manual assumes that you know how to use a Macintosh and are familiar with topics and skills such as menu bars, scroll boxes, dialog boxes, and mouse operations.

Important!

When the manual says, for instance, "Select 'Save' in the Settings Menu", you would move the mouse pointer to the word **Settings** in the menu bar and click and hold the mouse button. The menu would then appear, and you would "drag" the mouse pointer (while holding down the mouse button) down to the word **Save**, and then release the mouse button. As this is a somewhat lengthy explanation, this is the only place it will be used.

Topics such as Baudot, AMTOR, Packet, FAX, and other digital communications modes are explained in your data controller manual. This manual will discuss how to get started with each of these modes. If you need more information, please consult your data controller manual.

This section describes how to protect your MacRATT disk and will get you started.

Hardware Requirements:

Computer: MacRATT requires a Macintosh 512e, Macintosh Plus, Macintosh SE, or Macintosh series II.

Data Controller: You will also need a PK-232 or PK-88. PK-232 firmware will need to be dated June 25, 1987, or later.

PK-88: See page 3-1 for simple modification instructions.

Serial Cable: AEA provides a serial cable with a Macintosh Mini-8 for the computer end of the cable, and a DB-25 connector for the data controller end of the cable. Macintosh 512e users will have to provide an adapter to connect the Mini-8 end of the serial cable to the DB-9 connector found on these computers. See Appendix A for specific information about this cable.

Serial Cable: AEA provides a serial cable with a Macintosh Mini-8 for the computer end of the cable, and a DB-25 connector for the data controller end of the cable. Macintosh 512e users will have to provide an adapter to connect the Mini-8 end of the serial cable to the DB-9 connector found on these computers. See Appendix A for specific information about this cable.

Before You Use MacRATT

1. Make a backup copy of your serial numbered MacRATT disk. "Lock" and store the serial numbered original in a safe place. The backup copy you made will become your working copy.
2. If you do not have a hard drive, copy a system folder and Finder onto the working copy of your MacRATT disk.
3. If you do have a hard drive, simply copy the files from your MacRATT disk to your hard disk.
4. If you are using a PK-232, start with Chapter 2. If you are using either a PK-88 or PK-87, go to Chapter 3.

The Keyboard

Throughout the manual, keyboard keys are represented by a word with the first letter capitalized. Characters are represented by a word with all capital letters. For instance, Return refers to the key on the keyboard, but RETURN refers to a return character. "Control" refers to a key that the Mac 512e and Plus do not have (use the option key on these computers). This is not the "Command" key, which is marked by the "cloverleaf" symbol.

Extended Keyboards

Also, version 2.1 of MacRATT supports some of the special keys on the extended keyboard. The keys supported and their functions are as follows:

- F2, F3 and F4 perform Cut, Copy and Paste.
- Home, End, Page Up and Page Down are supported.
- Del produces DELETE character.
- Help and the other function keys are ignored.

Getting Started with the PK-232

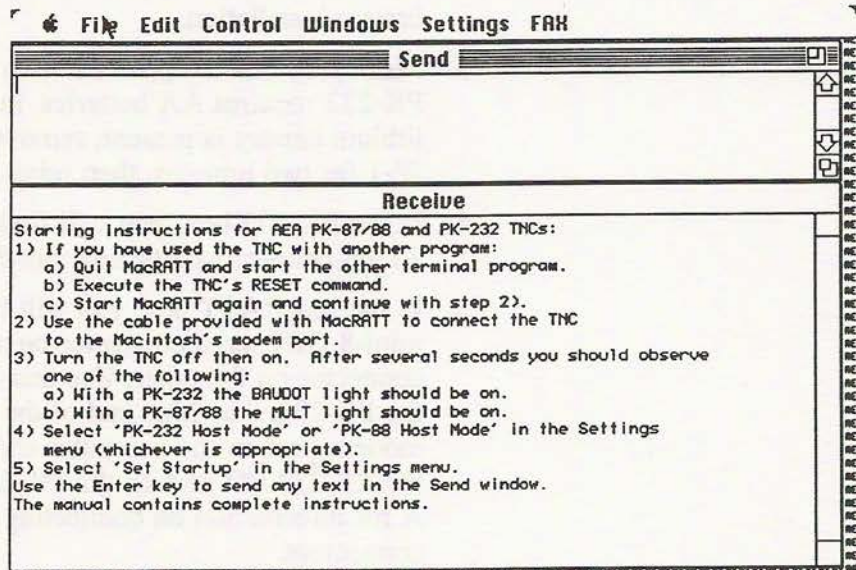
Setting Up and Testing the PK-232

This introduction is designed to get you up and running in the shortest amount of time. First, you'll set up and test your PK-232. Next, you'll connect the radio.

This section is for new users. If you're an experienced user, go to the following section called "Experienced Users".

1. Unpack the PK-232 and the MacRATT terminal program.
2. Open the top panel of the PK-232 and determine whether the PK-232 has an on-board lithium backup battery (which resembles a nickel and is located behind the RADIO 1/2 switch) or has a "box" mounted to the inside top cover for AA battery installation.
3. Make sure that the power switch on the PK-232 is off. If your PK-232 requires AA batteries, install three at this time. If a lithium battery is present, remove the small shorting plug from JP-1 for two minutes, then reinstall.
4. In the PK-232 box, you will find a large gray cable with two 25 pin connectors attached. Set this cable aside.
5. In the MacRATT box, you will find one cable with a Mac mini-8 DIN serial connector on one end and a DB-25 male connector on the other. Use this cable to connect the Mac to the PK-232. The Mac end of the cable connects to the phone modem port on the computer and the DB-25 end connects to the RS-232 I/O port on the PK-232. Also — refer to appendix A for information on connecting to Macs with other types of connectors.
6. The PK-232 requires 12 to 16 volts DC at up to 1.0 amp. Apply power to the PK-232 power connector, making sure that the center pin is positive. The AEA model AC-4 is an optional power supply for the PK-232.
7. Turn to page 2-3 in the PK-232 Operating Manual. The diagram for the front and rear panel will be useful in the next few steps.
8. Locate one of the two radio cables in the accessory bag you received with the PK-232. Working with just one of the radio cables, strip back the insulation an inch or so from the blank end and locate the green and white wires. Strip back some insulation from the green and white wires and twist the bare ends together.

9. Insert this prepared radio cable into Radio Port One on the rear panel of the PK-232. The wires on the radio cable will exit downward when properly installed in the PK-232.
10. Adjust the AFSK level control on the PK-232 rear panel so that the screwdriver slot on the potentiometer is straight up and down.
11. Select Radio 1 with the front panel switch.
12. Start up your computer with the MacRATT program by double-clicking on the MacRATT icon. You will shortly see two windows, "Send" and "Receive", with some start up instructions. Don't press any keys until you read these instructions completely. By the same token, do not follow the start-up instructions in the PK-232 Operating Manual...



Send and Receive Windows

13. Turning your attention to the front panel LEDs, turn on the PK- 232. The four LEDs on the left, MULT, SEND, STA, and CON will light for about 1/2 a second then go out, followed by the BAUDOT (BAW-DOE) LED. On the tuning bar display, one or two LEDs should be lit in the center. If this does not happen, refer to Appendix B.

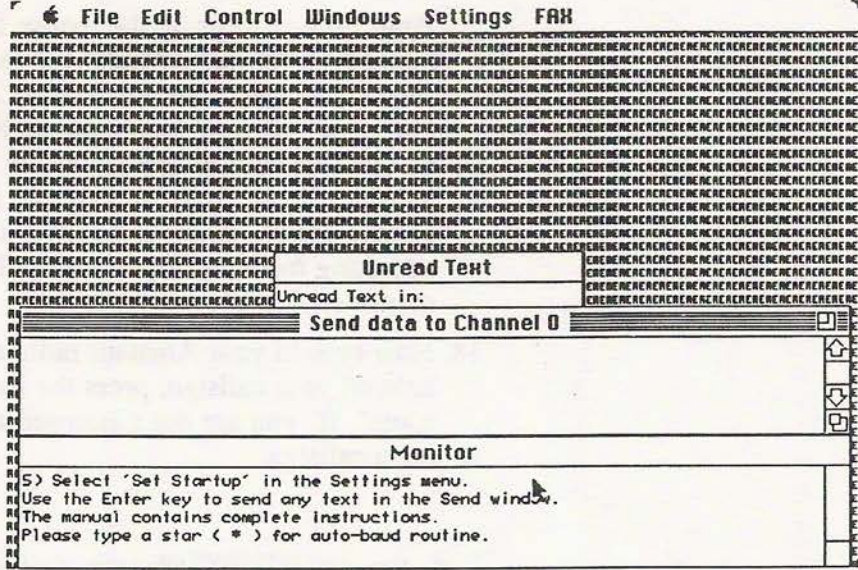
The following should appear in the "Receive" Window:

Please type a star (*) for auto-baud routine.

Do not type anything. Do not type a star.

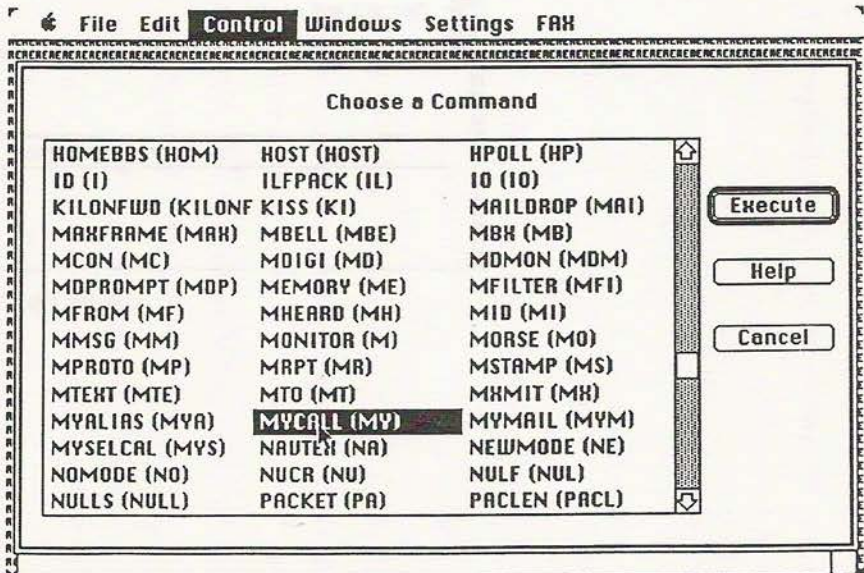
14. Instead, select "PK-232 Host VHF Packet" near the bottom of the "Settings" menu.

15. The front panel LEDs will switch from BAUDOT to PKT and CMD. A short while later, the "Send" window will now read "Send data to Channel 0". This is your indication that the terminal program and the PK-232 are communicating with each other.



Send Data to Channel 0

16. Now select "Command Mode" from the "Control" menu.
17. Click on the "Uncommon" button. Then, move the scroll box down the scroll bar to a point slightly below the word "Cancel". Locate and double click on the parameter, "MYCALL".



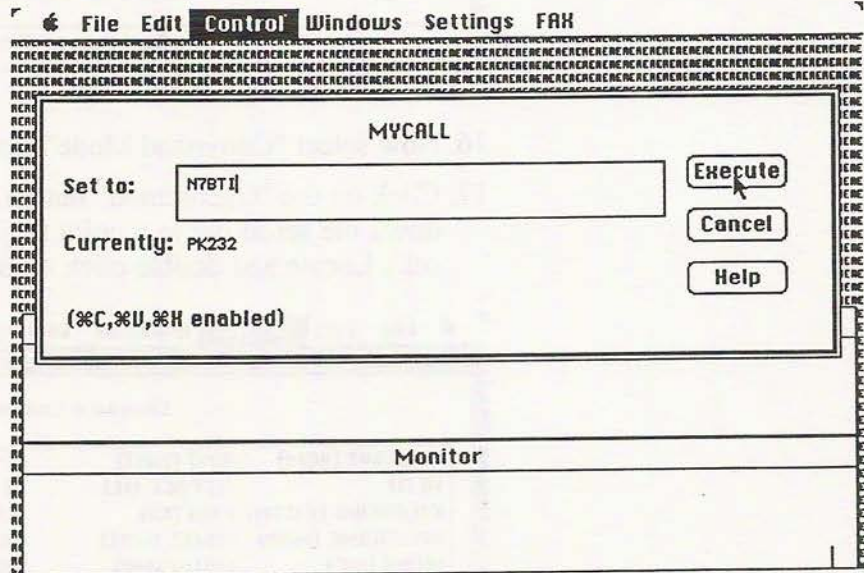
Command Mode, Selecting "MYCALL"

IMPORTANT!

This is the method used for entering or changing any commands or parameters in MacRATT. Whether you are changing to Baudot or just changing the baud rate, you will use this "Command Mode".

Hint: Instead of using the mouse to pull down the "Control" menu to "Command Mode" for each command you wish to select, you may hold down the "Command" key and press the "M" key. You may then type the first letters of the command on the keyboard to quickly locate and select that command. Then click on "Execute" or press the Return key. You may not see the desired command appear if you are not in the correct operating mode, or if you do not have "Uncommon" commands enabled.

18. Now type in your Amateur radio callsign. After you have entered your callsign, press the Return key or click on "Execute". If you are not a licensed amateur, simply type AAA for a callsign.



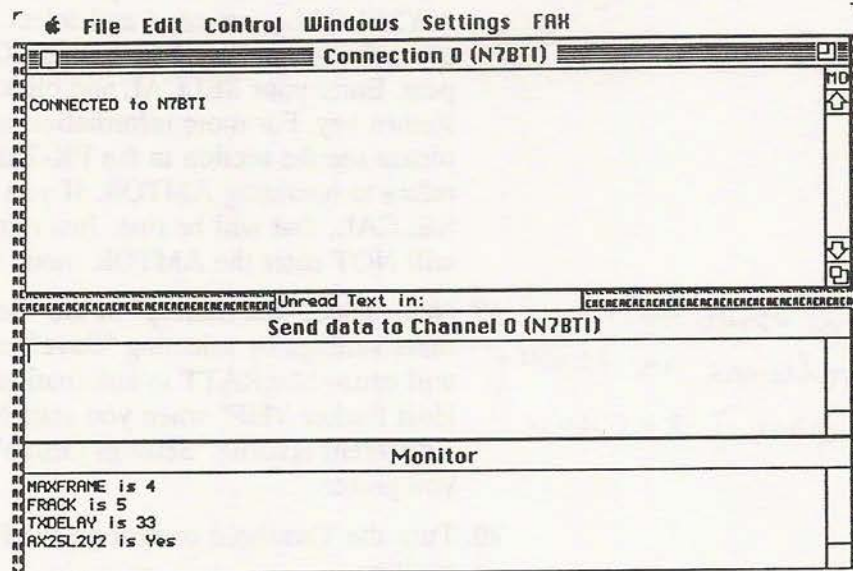
Callsign Typed In

If you intend to use AMTOR, you will need to enter your SELCAL. Here's how! Select "Command Mode" from the "Control" menu (or hold down the "Command" key and press "M"). Click on "Uncommon" or press the Return key. Locate the MYSELCAL command and select it. Click on "Execute" or press the Return key. The MYSELCAL dialog box will appear. Enter your SELCAL and click on "Execute" or press the Return key. For more information on choosing your SELCAL, please see the section in the PK-232 Operating Manual which refers to operating AMTOR. If you wish to wait to enter your SELCAL, that will be fine. Just remember that the PK-232 will NOT enter the AMTOR mode until a SELCAL is entered.

System Error - 44
(Disk volume is locked
by hardware) occurred.

19. Next, select "Set Startup" in the "Settings" menu, and save these settings by selecting "Save" in the "Settings" menu. This will cause MacRATT to automatically initiate the "PK-232 Host Packet VHF" when you start MacRATT. You may select a different favorite "Settings Group" from those installed, if you prefer.
20. Turn the Threshold control on the PK-232 to the 2 o'clock position.
21. Select "Command Mode" from the "Control" menu. When the Command screen appears, double-click on "Connect".
22. Type in the same callsign you entered before. This will most likely be your own callsign or AAA. Then click on "Execute" or press the Return key.
23. The "Send data to Channel 0" window displays the callsign to which you are now connected. A connection window will now appear on the lower portion of the screen.
24. Type some random text into the "Send" window. There are two ways to send this data to the PK-232. Using the mouse, you can select "Send Text" from the "Control" menu, or you can press the Enter key. The Return key can also be used to send text if you first select "Host Mode Parameters" from the "Settings" menu and put an "X" in the box which says "Send Text When Return is Pressed". In either case, the sentence will be sent to the data controller's transmit buffer. Since you are connected in a loop, your Connection window should display the sentence.
25. To disconnect, select the "Command Mode" from the "Control" menu. Double click on "Disconnect".
26. Now, to perform the loopback test the in HF Packet mode, select "PK-232 Host HF Packet" from the bottom of the settings menu.

27. Again bring up the "Command Mode". Double click on "Connect", then type in your callsign you entered into the



Callsign Appears in Window Title

MYCALL parameter.

28. The window titled "Send data to Channel 0" displays the callsign you are connected to.
29. Again type some random text into the "Send" window. Send the text with one of the methods listed in step 25.
30. To disconnect, bring up the "Command Mode" and double click on "Disconnect".

This completes the test. You have learned that selecting the "Command Mode" in the "Control" menu gives you a list of commands and parameters. **Connects, disconnects, hbaud, and mode changes are all done here.**

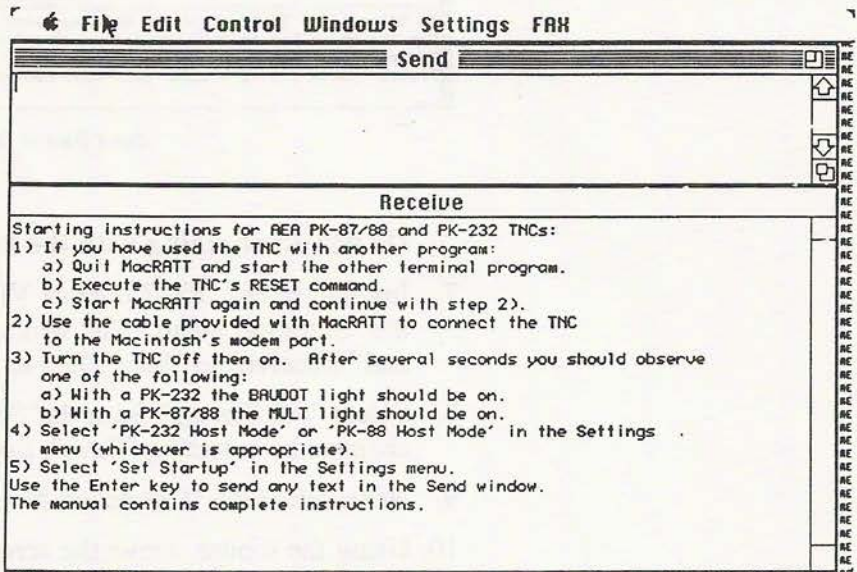
Now it's time to connect the radio. Skip the "Experienced Users" section just below and read "Connecting the Radio" at the end of this chapter.

Experienced Users

1. Unpack the PK-232 and the MacRATT terminal program.
2. Open the top panel of the PK-232 and remove battery jumper JP-1 (next to the nickel-shaped lithium battery by SW1) for 120 seconds, then re-install the jumper.

If your PK-232 does not have a lithium battery installed, install three AA batteries in the battery box located on the top panel. Reinstall the top panel.

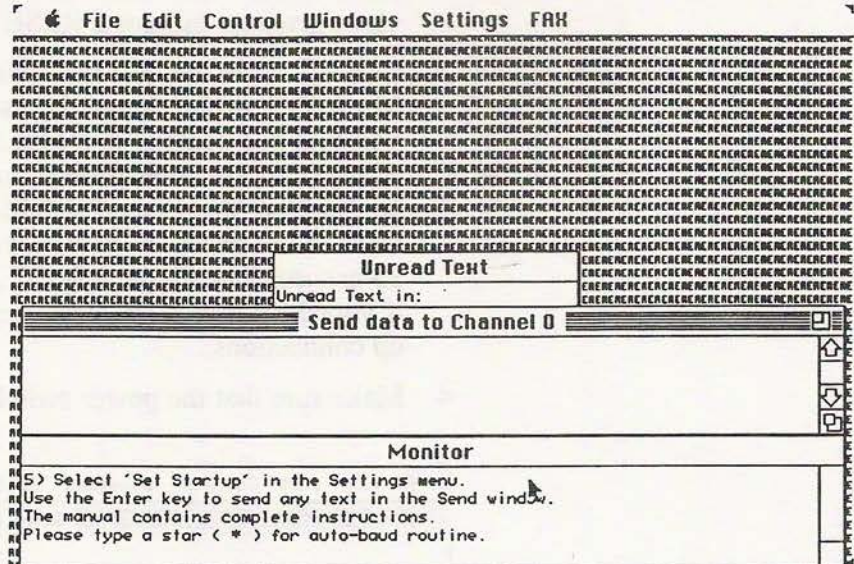
- If batteries have been installed previously, remove one of the batteries for 120 seconds and then replace, or use your previous program to issue a RESET command.
- The "Y" cable that you may have been using before MacRATT will no longer be used. In the MacRATT box, you will find one cable with a Mac SE serial connector on one end and a DB-25 male connector on the other. Use this cable to connect the Mac to the PK-232. The Mac end of the cable connects to the phone modem port on the computer and the DB-25 end connects to the RS-232 I/O port on the PK-232. Note: if your Mac uses a DB-9 connector, see appendix A for hook-up connections.
 - Make sure that the power switch on the PK-232 is off.



Send and Receive Windows

- Start up your computer with the MacRATT program and double-click on the MacRATT icon. You will shortly see the two windows, "Send" and "Receive", with some start up instructions.
- Switch on the PK-232 and turn your attention to the front panel LEDs. The four LEDs on the left, MULT, SEND, STA, and CON. will light for about 1/2 a second then go out, followed by the BAUDOT (BAW-DOE) LED. On the tuning bar display, one or two LEDs should be lit in the center. If this does not happen, see the preface and chapter 2 of your PK-232 operating manual.

The following sentence should appear in the "Receive" window:
Please type a star (*) for auto-baud routine.



Send Data to Channel 0

- Do not do anything with the keyboard. Do not type a star.
7. Instead, select "PK-232 Host VHF Packet" near the bottom of the "Settings" menu. The windows will change from "Send" and "Receive" to "Send Data to Channel 0" and "Monitor".
 8. Select "Set Startup" from the "Settings" menu, and save the changes by selecting "Save". See page 7-2 for more info.
 9. Next, select the "Command Mode" from the "Control" menu.
 10. Using the mouse, move the scroll box down the scroll bar to a point slightly below the word "Cancel". Then double click on MYCALL.
 11. Type in your Amateur radio callsign and press Return or click on "Execute". If you are not a licensed amateur, simply type AAA for a callsign.

If you intend to use AMTOR, you will need to enter your SELCAL. Here's how! Select "Command Mode" from the "Control" menu (or hold down the "Command" key and press "M"). Click on "Uncommon" or press the Return key. Locate the MYSELCAL command and select it. Click on "Execute" or press the Return key. The MYSELCAL dialog box will appear. Enter your SELCAL and click on "Execute" or press the Return key. For more information on choosing your SELCAL, please see the section in the PK-232 Operating Manual which refers to operating AMTOR. If you wish to wait to enter your SELCAL, that will be fine. Just remember that the PK-232 will NOT enter the AMTOR mode until a SELCAL is entered.

Connecting the Radio

This completes the initial set up and test. Remember that selecting the "Command Mode" in the "Control" menu gives you a list of commands and parameters. Connects, disconnects, hbaud, and mode changes are all done here. Now it's time to connect the radio.

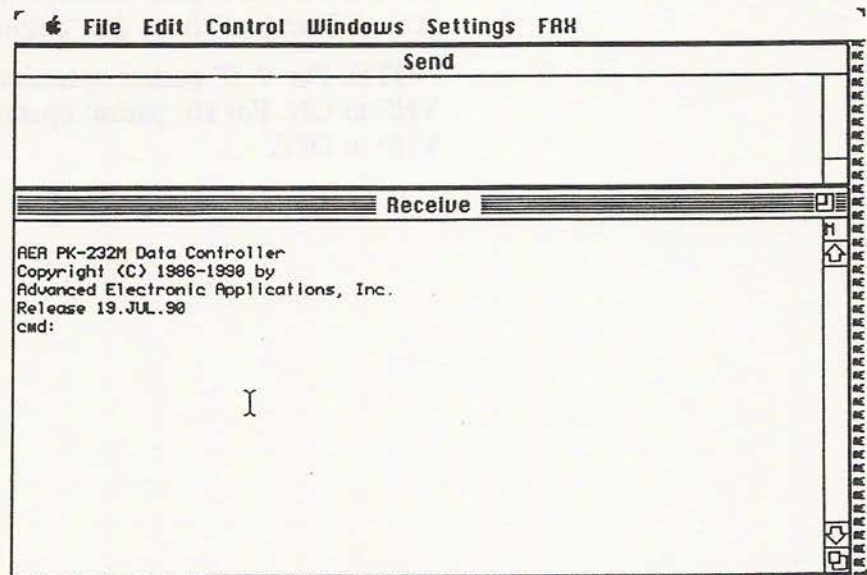
This section tells you where to find information for connecting the radio to your data controller. If you are an "old hand" at this too, you can skip this section.

Select "Dumb Terminal" from the bottom of the settings menu. This SCG puts the PK-232 and MacRATT into a direct command type of user interface. Many of the nice features of MacRATT will not be available in this mode, but it is useful for the following procedure.

Now turn off power to your data controller, and remove the serial cable from the rear panel of the data controller. Locate your data controller operating manual. The PK-232 manual contains setup information in chapter two.

Read and complete the instructions starting on page 2-6 of the PK-232 Operating Manual. When reading either the FM Installation and Adjustment or the SSB Installation and Adjustment section in the PK-232 manual, keep in mind that the keystroke sequence on the Macintosh will have to be modified somewhat.

After you have made a radio cable and applied power to the PK-232 again, your screen should look something like this:



PK-232 start-up message

When you type in a command such as CAL, H, K, or SPACEBAR, the command will appear in the "Send" window, and the command will be executed when you press the Enter key on the Macintosh. Note that pressing Return does not cause a command to be executed (although it will if you select "Host Mode Parameters" from the "Settings" menu and put an "X" in the box which reads "Send Text when Return is Pressed"). Any PK-232 command or parameter can be changed in this way. Commands and parameters changed in this manner will remain changed when the PK-232 Host Mode is selected again.

For your convenience, macros for the calibration commands have been added to the Dumb Terminal emulation. Click in the Receive window, then locate the "M" at the top of the scroll bar. Point at the "M" and press the mouse button. Drag to the desired function and release the mouse button.

At this point, adjust your PK-232 for your radio as described in the PK-232 Operating Manual.

Now, assuming that you have built your radio cables and adjusted the AFSK level for your radio, you will return the PK-232 and MacRATT to the desired host operating mode, selected from the bottom of the "Settings" menu.

The "Send" window should now read "Send data to Channel 0" and the "Receive" window reads "Monitor".

To return to the Dumb Terminal mode in the future, select "Dumb Terminal" from the "Settings" menu.

NOTE: For VHF packet operation, set HBAUD to 1200 and VHF to ON. For HF packet operation, set HBAUD to 300 and VHF to OFF.

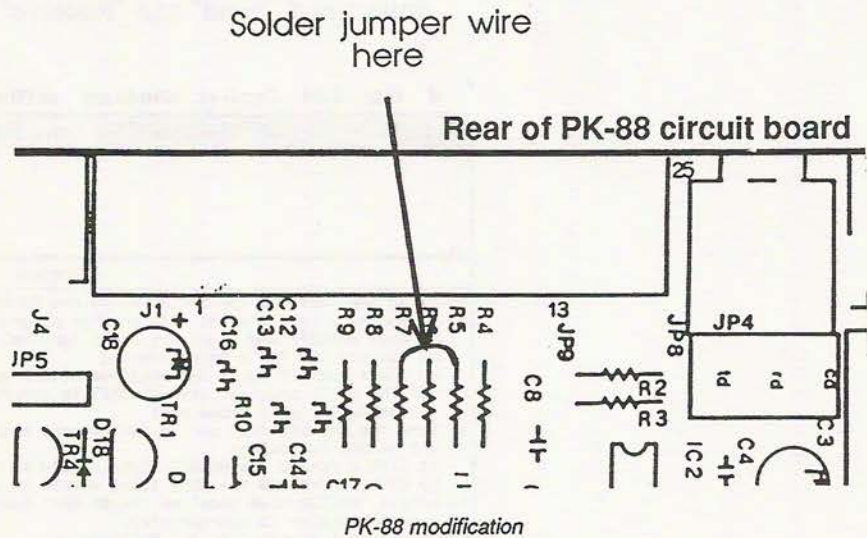
Getting Started with the PK-88

Setting Up and Testing the PK-88

This introduction is designed to get you up and running in the shortest amount of time. First, you'll set up and test your PK-88. Next, you'll connect the radio.

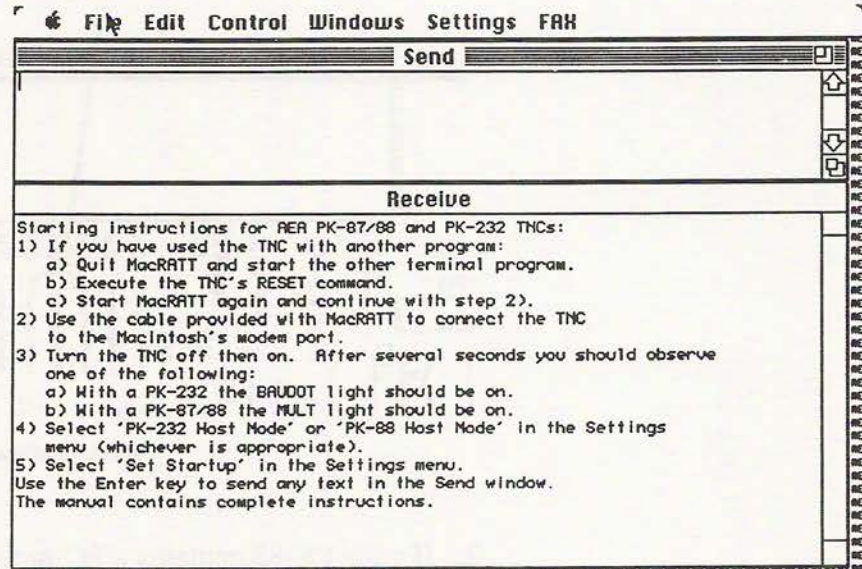
Unpack the PK-88 and the MacRATT terminal program. Open the top panel of the PK-88 by removing the four screws.

1. Solder a short length of insulated wire to one end of resistors R5 and R7 on the PK-88 circuit board, shorting them together. See the diagram below. Optionally, an insulated wire with small alligator clips on each end can be used.



2. If your PK-88 contains a PC-mounted lithium battery, remove the battery jumper for 2 minutes, then replace the jumper.
3. If the data controller does not have a lithium battery, install two AA batteries in the battery box located on the top panel. Leave the top panel off at this time.
4. In the MacRATT box, you will find one cable with a Mini-8 DIN serial connector on one end and a DB-25 male connector on the other. Use this cable to connect the Mac to the PK-88. The Mini-8 end of the cable connects to the phone modem port on the computer and the DB-25 end connects to the RS-232C port on the PK-88.
5. Make sure that the power switch on the PK-88 is off.

6. The PK-88 requires 12 to 16 volts DC at 500 milliamps. Apply power to the PK-88 power connector, making sure that the center pin is positive. The AEA model AC-1 is an optional power supply for the PK-88.
7. See page 2-9 and Appendix E of your PK-88 Operating Manual. These instructions will be helpful in connecting up the grey radio cable.
8. Once this is done, insert the prepared radio cable into the Radio Port on the rear panel of the PK-88.
9. Adjust the AFSK level adjust in the PK-88 so that the screwdriver slot on the potentiometer is at a 50% position.
10. Start up your computer with the MacRATT program and double-click on the MacRATT icon. You will see two windows titled "Send" and "Receive".



Send and Receive Windows

11. Switch on the PK-88 and turn your attention to the front panel LEDs. After half a second or so, the only LED still lit should be the "MULT" LED.

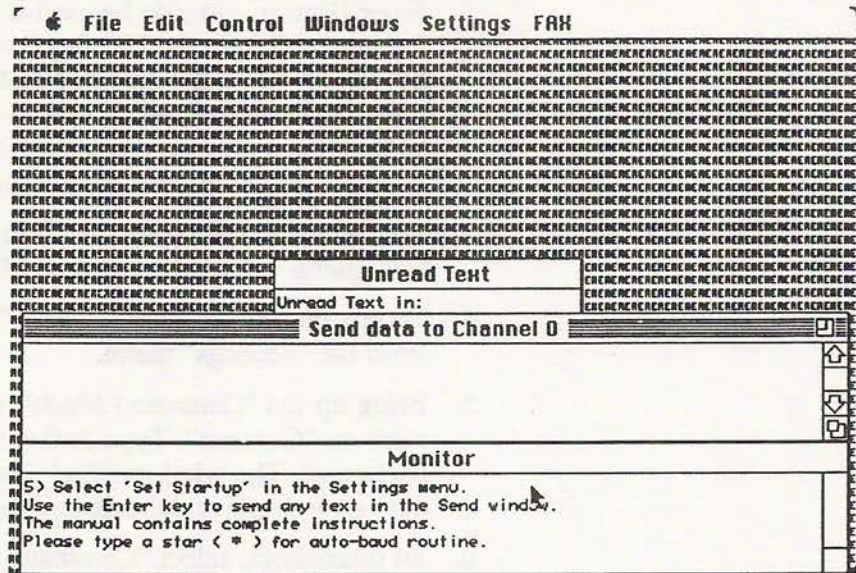
The following sentence appears in the "Receive" window:

Please type a star (*) for auto-baud routine.

Do not do anything. Do not type a star.

12. Instead, select "PK-88 Host Mode" at the bottom of the "Settings" menu.

The front panel LEDs will switch from MULT to CMD. A short while later, the "Send" window reads "Send data to Channel 0". This is your indication that the MacRATT program and the PK-88 are communicating with each other.



Send data to channel 0

13. Select "Command Mode" from the "Control" menu.
 14. Point and click on "Uncommon" on the right side of the screen. Using the mouse, move the scroll box down the scroll bar to a point slightly below the word "Cancel". Double click on "MYCALL".
 15. Type in your Amateur radio callsign and press Return or click on "Execute". If you are not a licensed amateur, simply type AAA for a callsign.
 16. If you wish to have the PK-88 come up the host mode automatically when you start the program, you may select "Set Startup" from the "Settings" menu, and then select "Save".
1. Bring up the parameter screen by selecting "Command Mode" from the "Control" menu. Then double click on "Connect".
 2. Type in the same callsign that you entered before. This is most likely your own callsign or AAA. Now click on "Execute" or press Return.

The window titled "Send data to Channel 0" displays the callsign you are connected to. Also, a connection window now appears in the upper portion of the screen.

Loopback and Self-Check

Type "this is a test" into the "Send" window. There are two ways to send this data to the PK-87/PK-88. You can pull down the "Control" menu and click on "Send Text", or you can press Enter (Return can also be used if you first select "Host Mode Parameters" from the "Settings" menu and place an "X" in the box labeled "Send Text when Return is Pressed"). In either case, the sentence will be sent to the data controller's transmit buffer. Since you are connected in a loop, your Connection window should display the sentence.

3. To disconnect, bring up the "Command Mode" from the "Control" menu and double click on "Disconnect".
4. To test the HF circuitry: Select "PK-88 Host HF Packet" from the "Settings" menu.
5. Bring up the "Command Mode" as before. This time, double click on "Connect". Type in the callsign in the MYCALL parameter. The window titled "Send data to Channel 0" window now displays the callsign you are now connected to.
6. To disconnect, select "Command Mode" in the "Control" menu, and double click on "Disconnect".

This completes the initial set up and test. From this point on, selecting the "Command Mode" from the "Control" option in the menu bar will give you a list of commands and parameters that the PK-232 will execute. Connects, disconnects, hbaud, as well as mode changes are all done here.

Connecting the Radio

This section tells where to find information for connecting the radio to your data controller. If you are an "old hand" at this, you can skip this section.

The first step is to set up MacRATT so that you can follow the instructions in Chapter 2 of your data controller operating manual. If you have been following along, your computer screen should look like this:

Dumb Terminal Mode: The following steps put the data controller and MacRATT in a direct command type of user interface. Most of the nice features of MacRATT won't be available here, but it is useful for some procedures.

1. Select "Dumb Terminal Mode" from the bottom of the "Settings" menu.

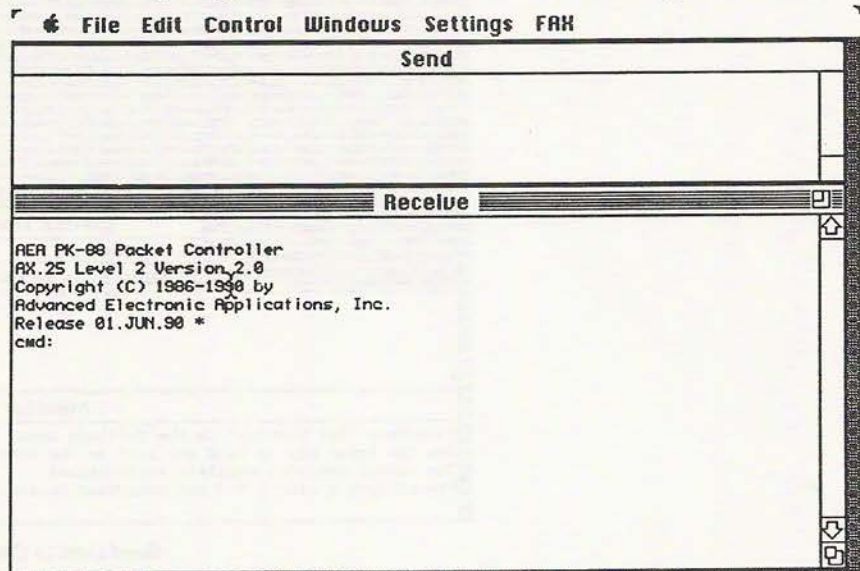
"Send data to Channel 0" changes to just "Send", and the "Monitor" window is now labeled "Receive". If you have a Connection window displayed, click on its close box to close the window.

2. Now turn off power to your data controller, and remove the serial cable from the rear panel of the data controller. Turn to page 2-11 of your PK-88 operating manual.

When reading either the FM Installation and Adjustment or the SSB Installation and Adjustment section in the PK-88 manual, keep in mind that the keystroke sequence on the Macintosh will have to be modified somewhat.

For your convenience, macros for the calibration commands have been added to the Dumb Terminal emulation. Click in the Receive window, then locate the "M" at the top of the scroll bar. Click and hold on the "M", drag down to the desired function and release the mouse button to execute the macro.

After you have made a radio cable and applied power to the PK-88 again, your screen should look something like this.



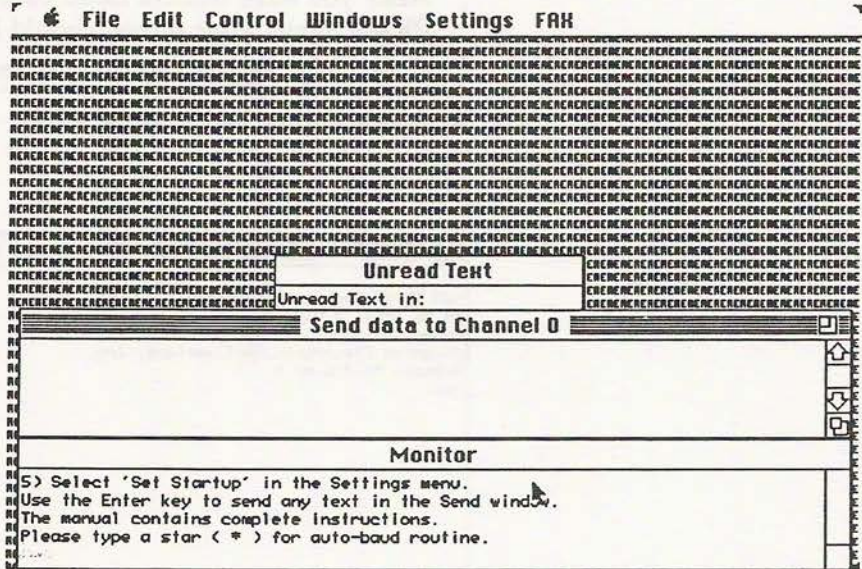
PK-88 Start-up Screen

When you type in a command such as CAL, H, K, TONE, or SPACEBAR, the command will appear in the "Send" window, and the command will be executed after you press the Enter key (not the Return key). Adjust the PK-88 and radio as described in your data controller manual.

At this point, we assume that you have built your radio cables and adjusted the data controller's AFSK level for your radio. We now want to return the program to the host mode.

- 3. Select one of the "PK-232 Host" modes at the bottom of the settings menu.

The "Send" window should now read "Send data to Channel 0" and the "Receive" window reads "Monitor".



Send Data to Channel 0

This is a quick guide to get you started on the air with Packet. This discussion assumes that you are vaguely familiar with the Packet mode (if not, refer to your data controller manual). This is a good place to start since it requires some MacRATT skills that you will use regardless of the mode you are working.

Command Mode

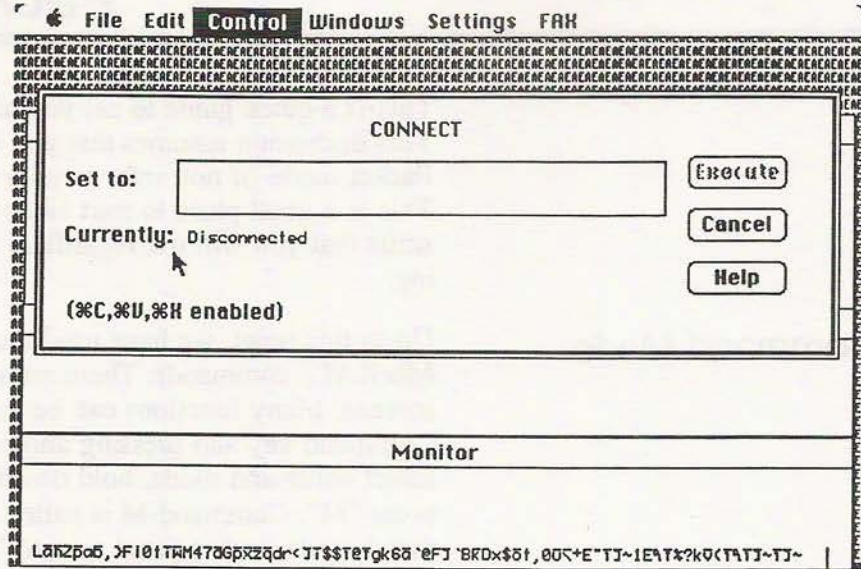
Up to this point, we have used the mouse to invoke several MacRATT commands. There are other ways to bring up screens. Many functions can be accessed by holding down the Command key and pressing another key. For example, to select command mode, hold down the Command key and press "M". Command-M is called the "hot key" for the Command mode, and is listed next to "Command Mode" in the "Control" menu.

The command mode list contains all the common commands. When a list of commands is displayed, each command is followed by its abbreviation in parenthesis. For instance, the "C" in the line "CONNECT (C)" is the abbreviation for "CONNECT"

When you type characters, use abbreviations instead of the command name. For instance, if two of the available commands are "CBELL (CB)" and "CONNECT (C)" and you type "C", then "CONNECT (C)" will be highlighted because although both abbreviations start with "C", CONNECT's abbreviation comes first. When you press "B" next, (within a reasonable amount of time or the Macintosh will treat the two keys as separate commands), the "CBELL (CB)" command is highlighted. You may also use the arrow keys or mouse pointer to select a command.

VHF Packet

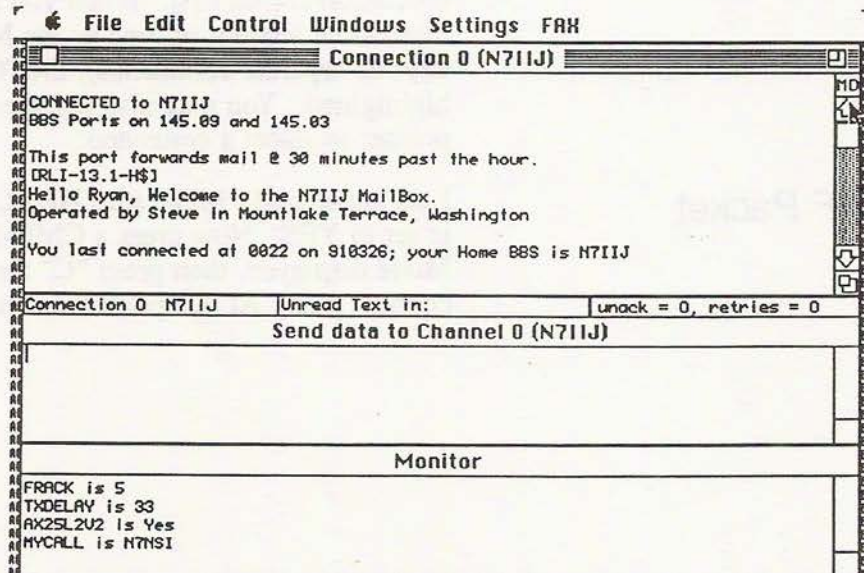
Lets get started. Make sure HBAUD is set to 1200 and VHF is set to YES. Now press a CMD-M to get the Command Mode displayed, then press "C" then the Return key to enter a connect path. At this point the screen should look like this:



Connect command

This example shows a connection being made to a local BBS (N7IIJ) and a check for mail. N7IIJ is typed into the connect window, then the Return key is pressed.

When the connection is made, The "Send Data to Channel 0" window will include the call sign of the station connected to as does the Connection 0 window.



Callsign appears in window title

Now, the letters "rm" are typed into the "Send Data" window followed by the Enter key (the BBS responds to the letters "rm" as "read my mail"). Because there are no messages for the sending station, the BBS shortly responds with a "none found" message.

```

File Edit Control Windows Settings FAX
Connection 0 (N711J)
Operated by Steve in Mountlake Terrace, Washington
You last connected at 0022 on 910326; your Home BBS is N711J
Type H for Help.
Type I for Information about this system.
N7NSI de N711J: at 2254z on 910621 B,D,H,?,I,J,K,L,N,R,S,T,U,V,W >
*** None found.
N7NSI de N711J: at 2255z on 910621 B,D,H,?,I,J,K,L,N,R,S,T,U,V,W >
Connection 0 N711J Unread Text in: unack = 0, retries = 0
Send data to Channel 0 (N711J)
rm
Monitor
FRACK is 5
TXDELAY is 33
AX2SL2U2 is Yes
MYCALL is N7NSI

```

Unread Text window

If the service to which you are connected has such a command, you can issue a "Bye" command to disconnect, usually performed by typing the letter "b". You can also disconnect by selecting the "DISCONNE (DI)" command from the "Command Mode".

For more information on working a BBS, refer to the "Quick-Read" section near the end of this chapter.

Remember, the Return key can be used to execute commands, but the Enter key **MUST** be used to send data unless the "Send Data When Return is Pressed" option is enabled in the "Host Mode Parameters" dialog box selected from the "Settings" menu.

HF Packet

HF Packet operates much the same except for some parameter changes. When you select the "PK-232 Host HF Packet" settings, PACLEN is decreased to 64, MAXFRAME is set to 1, FRACK is increased to 6 or 7, HBAUD is set to 300 and VHF to NO (the PK-88 uses the TONE command to accomplish the same results as the VHF command). Note that with a PK-88 there is no tuning indicator, and tuning may be difficult on HF.

Multiple Connects in Packet

The ability to move screens and the "Unread Text" window (see chapter 6) make multiple connects very efficient. When working with more than one station at a time, be sure to set the "USERS (US)" parameter greater than or equal to the number of connects you wish to make.

Just above the scroll bar in the active window, a small "D" should appear (this may not happen with older system software). Please note that if the active window is small enough, the small "D" may not be visible. This is done to make room for the scroll bar. If this is indeed the case, either make the active window larger or make another window the active window. Position the pointer over the small "D" then press and hold the mouse button. You will see the numbers 0 - 9. As you make connections to various callsigns, these numbers will be replaced by the callsign of the station to which you have connected.

Once connected, the data that you receive from a particular station will appear in a "Connection" window. The first station that you connect to will be placed in "Channel 0". The next station that connects will be placed in "Channel 1" and so on.

By positioning the pointer over the small "D" and pressing the mouse button, you can select, by callsign, the station to which data will be sent. On the receiving side, you can move windows around to view data being sent to you.

If there are too many stations to see on the screen, you can use the "Unread Text" window to keep track of data that you have not seen.

Unread Text Window

The "Unread Text" window is used to alert you when text is received by a closed or hidden window. To view the "Unread Text" window, go to the "Windows" menu and select "Show Unread Text". When text is received by a window other than the active one, a symbol will appear indicating the correct window (0-9 for channel numbers, "M" for the monitor window).

When the "Unread Text" window alerts you to data on a window that you are not currently viewing, you will want to make the window active. Do this by either opening the window from the "Windows" option in the menu bar or by holding the Command key and pressing the number corresponding to the connection window.

It is also possible to point at the characters that show in the "Unread Text" window to bring the corresponding window on-screen and read the unread text.

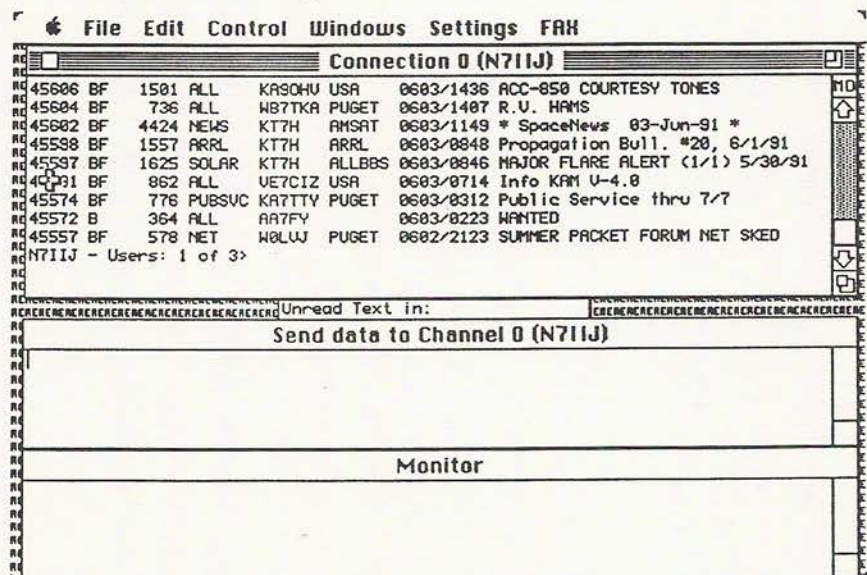
For instance, you are working a bulletin board on Channel 0 when a friend of yours connects to your station. Any data he sends will appear on the "Connection 1" window. If the "Unread Text" window is on, you will see the number 1 displayed alerting you to the presence of data on Channel 1. Press and hold the Command key then tap the number 1 to make the "Connection 1" window visible. To send data to your friend on channel 1, click and hold on the small "D" and drag the highlight down to the correct callsign. You will notice that the "Send data to Channel...." window will also display the callsign of the connected station.

Keep in mind that if more data is received from a station than the connection window can hold, the data that went off the top of the window can be viewed by using the scroll bars.

QuickRead

QuickRead is a feature which has been added to MacRATT version 2.1. Earlier versions do not support it. QuickRead makes operation with Packet BBS stations much more efficient. Operation is as follows:

When QuickRead is on (set from the "Control" menu) and the mouse cursor is over an active connection window or receive window, the cursor will turn into a "+" sign. Clicking on a line of text that starts with a number will produce a menu of BBS commands to apply to the number (i.e. Read, Kill, etc.). Selecting one of the commands produces the same result as typing the command in manually. This is designed to allow the user to generate commands to read and kill messages on BBS stations without doing any typing. You may find it useful to scan the titles of new messages on your BBS and click on the titles that look interesting.



Using QuickRead

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Table with multiple rows and columns, containing faint, illegible data, likely bleed-through from the reverse side.

Unlabeled text or header on the right side of the page.

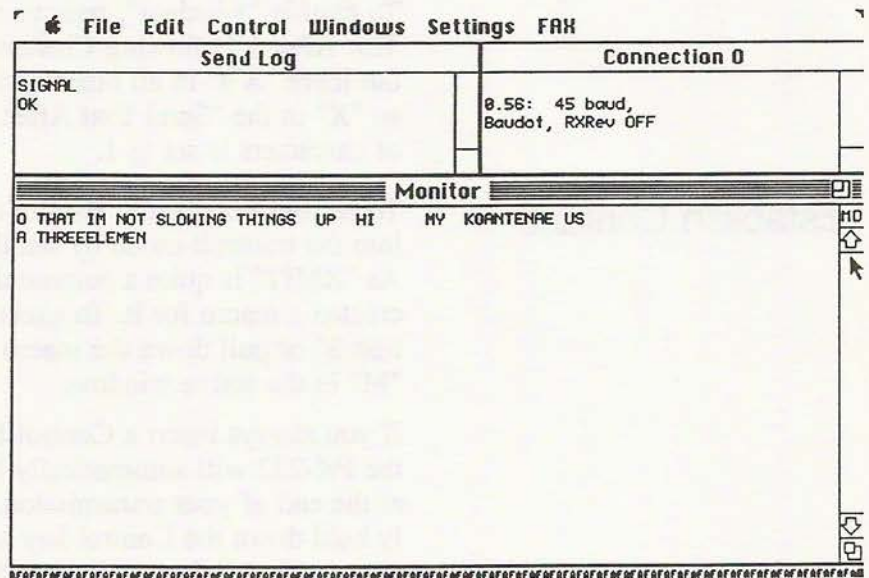
Baudot / ASCII / AMTOR Quick Start

This is a quick guide to RTTY (including Baudot, ASCII and AMTOR) operation with MacRATT. It is not meant to explain all of the ins and outs of RTTY. We will explain the basics of how to receive and send; parameter changes will be done in the "Control" menu's "Command Mode" as explained in chapter 4.

Let's start by placing the PK-232 into the Signal Identification and Acquisition Mode (SIAM) to begin receiving.

Select "PK-232 Host SIAM" from the bottom of the "Settings" menu. The signal identification process will show up in the "Connection 0" window.

In the example below, SIAM has identified the signal as 45 baud Baudot.



SIAM

To decode this signal, place the PK-232 into Baudot mode by activating the "OK" macro. This is done by either pressing Option-2 or by clicking and holding on the small "M" in the active window, and dragging the highlight bar down to "OK".

The PK-232 now goes into the mode that was identified in SIAM (in this case, Baudot) and received data will be displayed in the "Monitor" window. At this point, the "Connection" window can be closed to make more room for the received data.

Once you are getting readable text in the "Monitor" window, make a note of the mode, baud rate and RXREV parameters. Then select the appropriate mode from the "Settings" menu. The baud rate and RXREV parameters can be changed from the "Command Mode" in the "Control" menu.

Sending Text

All of the SCGs (Saved Configuration Groups – see chapter 7) for the RTTY modes (Baudot, ASCII and AMTOR) have been set up at the factory for "Automatic Sending". This provides a more natural feel for sending in these modes. Because of this, the "Send Log" window has been positioned where the "Send Data to Channel 0" window is positioned normally. When text is sent automatically, it does not show up in the normal "Send" window.

Wordout

To change between automatic and manual sending (what would normally be called the PK-232's "Wordout" function), select "Send Text Automatically..." from the "Settings" menu. To **enable** "Wordout", remove the "X" (if any) from the "Send Text After 1 Following Characters Have Been Entered" box, but leave "X's" in all other options. To **disable** "Wordout", put an "X" in the "Send Text After..." and make sure the number of characters is set to 1.

Establish Contact

To establish contact in Baudot or ASCII, place the PK-232 into the transmit mode by sending the command "XMIT (X)". As "XMIT" is quite a commonly used command, we have created a macro for it. To execute this macro, either press "Option-2" or pull down the macro menu by clicking on the small "M" in the active window.

If you always insert a Control-D at the end of your send text, the PK-232 will automatically be placed into the receive mode at the end of your transmission. At the end of your text, simply hold down the Control key and press D. (Use "Option" if your keyboard doesn't have a "Control" key.)

Pre-Set Macros

To make operation easier, a few macros have been set at the factory for ASCII, Baudot and AMTOR use. As previously mentioned, the XMIT command is contained in a macro, although not in AMTOR, as it would have no use there. Other macros include:

- "Force Receive", which puts the PK-232 into receive mode even if it is not done transmitting (normally a CTRL-D is used to go to receive)
- "TX Buffer Clear"
- Common baud rate selections
- "Forced Changeover" — ACHG command (AMTOR only)

Receiving

You should create your own macros for any commands you find are being used frequently. See chapter 12.

To receive a signal when you aren't sure what it is (i.e. what mode or baud rate), SIAM is your best bet. However, if you do know the mode and baud rate, you can save some time by entering the commands manually. For instance, if your friend calls you on SSB voice and says he will start sending 75 baud Baudot on a certain frequency, you would select "PK-232 Host Baudot" from the bottom of the settings menu. Then, you would bring up the "Command Mode", this time selecting "RBAUD" and setting it to 75. At this point, you are ready to receive. You do not need to specifically tell the PK-232 to start receiving (except in the case of AMTOR ALIST).

To receive an AMTOR signal (either ARQ or FEC), simply put the PK-232 in the AMTOR mode (select "AMTOR" in the "Command Mode"). The PK-232 actually goes into AMTOR Standby, meaning it will automatically recognize which AMTOR mode is being received and perform the necessary functions. The baud rate is fixed in AMTOR operation.

AMTOR Standby will not auto-receive an AMTOR ARQ contact between two other stations. It will recognize an FEC transmission and will also auto-respond to its own SELCAL when part of an ARQ request. To receive an ARQ contact between two other stations, you must use the ALIST (Arq LISTen) command.

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Most of MacRATT's windows are described in this section. The Send and Send Log windows are described in chapter 8. All of the windows except the FAX window and the Clipboard window can be accessed via the Windows menu.

Host Mode

The "Host Mode" referred to earlier in the manual is an operation unique to the PK- and DSP-series of data controllers (excluding the PK-64 and PK-80), manufactured by AEA. This is a type of program interface language built into the data controller, making programs like **MacRATT with FAX** possible. See chapter 9 for further details.

Monitor Window

When you are using Host Mode, the "Receive" window becomes the "Monitor" window. The monitor window displays any text that is not put in one of the connection windows.

Connection Windows

Connection windows are always available, providing your Mac has enough memory free. Each connection window behaves like the monitor window except that it only displays the information from your Packet connection or from special operations like SIAM (see chapter 5). The title of each connection window shows the callsign of the station you are connected to (if applicable).

Connection windows can be created either automatically or manually and can also be removed. In Host mode, MacRATT always tries to create a connection window when a new connection is established if a connection window for that particular channel does not already exist.

Creating & Removing Connection Windows

To create a connection window, select "Create Connection Window" from the "Control" menu.

To remove a connection window, bring it to the front and select "Remove Connection Window" from the "Control" menu. Removing a window will discard any data in the window's buffer. If you want to remove a window from the screen, but do not want to lose the information in its buffer, select "Close Window" instead of "Remove Window".

Since each connection window requires some of the Mac's memory, there may be times when you cannot create a new window. If MacRATT cannot create a new connection window, it will put text from the new connection into a currently open window. Before it does this, MacRATT displays a warning message and waits three minutes for acknowledgement.

If MacRATT is running in the background under MultiFinder and cannot create a window, no warning message is displayed. The Communications Status window will indicate when text from a connection is being rerouted.

In host mode, when information from different data controller streams or channels appears in the same window, the change in source is flagged with the identifier of the stream or channel and the call of the station using that stream (if there is one). For instance, when text from connection D appears in the window Connection A, you might see this:

```
This is from PSU on connection 0.  
|1:PSU-3:This is from PSU-3 on connection 1.  
This is also from PSU-3.  
|0:PSU:This is from PSU again.
```

Send Log Window

The Send Log window holds a copy of the text that you have entered and sent. If you are sending text automatically, the Send Log window may contain some text that has not been sent yet. Files that you send are not displayed in the Send Log window.

To view the Send Log window, select "Show Send Log" from the "Windows" menu. Note that you can scroll the window.

Status Windows

There are two status windows, the Communications Status window and the File Status window (see the Communications status window below).

The Communications Status window displays information about the windows with buffers. It also displays information about your connections to other stations.

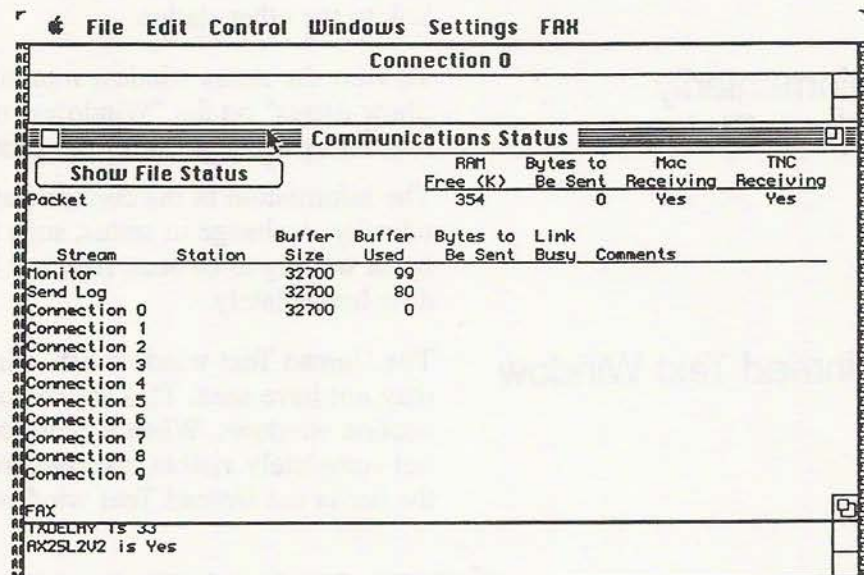
The File Status window displays information about file transfers. For more information, see the chapter on Files.

To view either of these two windows, select "Show Status" from the "Windows" menu. The first window displayed is the communications Status window.

To view the File Status window, click on "Show File Status". Click on "Show Communications Status" (same place) to "toggle" back to the Communications Status Window.

Memory Requirements

Both status windows display general status information (see the Communications Status window below). "RAM Free (K)" is the amount of memory in the computer available for MacRATT to use. One K is 1024 bytes. If this value is 10 or less you should close some desk accessories or remove some connection windows. MacRATT (and most other programs) will crash if they do not have enough memory. "Bytes to Be Sent" shows how many characters are waiting to be sent to the data controller or are in the process of being sent to the data controller. This value may fluctuate slightly as MacRATT sends control information to the data controller. For details, see chapter 15, Output Queue.



The Communications Status window.

Flow Control

In the upper right of the status windows are two items that show the state of flow control. "Mac Receiving" indicates the Mac has signaled the data controller that it can accept data at this time. Similarly, "TNC Receiving" indicates the data controller has signaled the Mac that it can accept characters. This has no relationship to the data controller receiving anything on the air; it just refers to the flow of data between the data controller and the Macintosh via the serial cable.

Just below the "Show File Status" box is a description of the current mode. It may require a few seconds for a change in operating mode to be reflected here.

Buffer Information

The window-by-window breakdown of buffer information shown in the status window is explained below.

Station: Shows which station is connected to each of the data controller's channels.

Bytes to Be Sent: Breakdown by streams of the bytes waiting to be sent to the data controller or are being sent to the data controller.

Link Busy: A "Yes" in this column indicates that MacRATT must wait to send information to the connected station.

Comments: Miscellaneous comments about the status of the link to the other station.

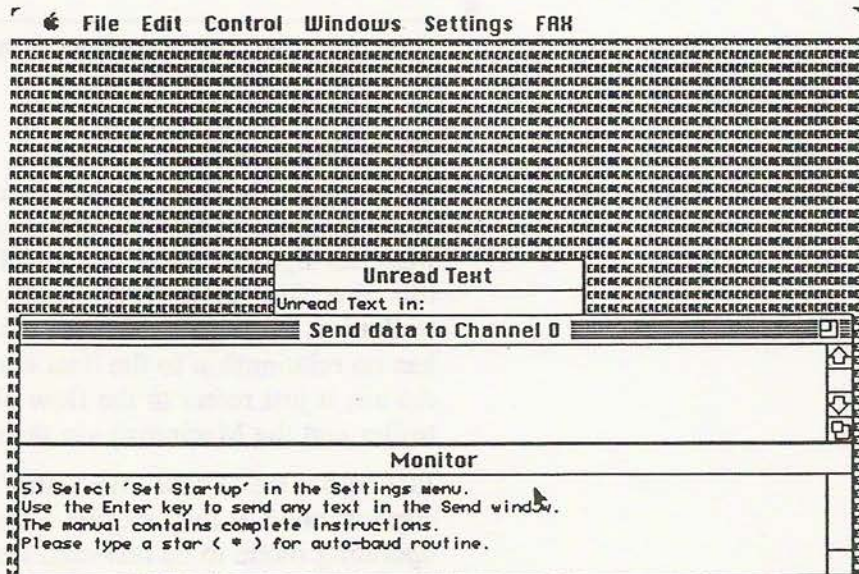
To view the status window momentarily, select "Momentarily Show Status" on the "Windows" menu. This displays the current status window for a few seconds and then hides it again.

The information in the current status window is updated periodically. A change in status, such as a change in the number of bytes waiting to be sent, may not be reflected in the status window immediately.

The Unread Text window lists windows that contain text you may not have seen. This applies only to the monitor and connection windows. When a character is put in a window that is not completely visible, the obscured window will be added to the list in the Unread Text window.

Momentarily Show Status

Unread Text Window



The Unread Text window

When a new window is added to the unread list, MacRATT beeps twice. The monitor window is represented in this list by "M". Connection windows are represented by the letter or number that identifies the data controller channel associated with the connection window. In the previous example, the Unread Text window indicates that there is unread text in both the monitor and connection "0" windows.

To view the "Unread Text" window, select "Show Unread Text Window" from the "Windows" menu.

The Unread Text window is mouse-sensitive. If a window's identifier is in the Unread Text window, then you can click on the identifier to bring the associated window to the front. If a window extends off the screen, its identifier cannot be removed from the Unread Text Window.

If MacRATT encounters an error while running in the background under MultiFinder, the word "ERROR" appears in the Unread Text window.

Clipboard Window

The Clipboard window displays text that is on the Clipboard. To view the clipboard, select "Show Clipboard" from the "Edit" menu.

Configuring Windows

You can rearrange, resize, and show and close MacRATT's windows to make a comfortable configuration. Here is a list of the remaining commands in the windows menu:

Close Window: Makes the front window invisible or closes the desk accessory that is in front. Closing a connection window just hides it and does not actually release the window's buffer.

Send Window to Back: Moves the front window behind all of the other windows.

Show (window name): Makes a window visible and moves it to the front.

Window Performance

If part of the monitor window, Send Log window, or a connection window extends off the screen, the window scrolls slowly when text is added to it. Also, the Unread Text window will not properly handle a window that extends off the screen. If possible, keep the entire area of these windows within the Mac's screen. A window will also scroll slowly if its scrolling area is partially obscured by another window.

Note Window Locations

The "Note Window Locations" command in the "Settings" menu records each window's size, position, and appearance (visible or invisible). The "Save" command in the "Settings" menu stores this configuration in the current SCG (Saved Configuration Group) for future use. See the "Settings" section for details on saving settings.

Options for Monitor & Connection Windows

The options for the monitor window and the connection windows are controlled from the "Settings" menu. Both types of windows have the same set of options, but are controlled independently. You can turn on some options for the monitor window and turn on different options for the connection windows.

To select options for either window, select "Monitor Window" or "Connection Windows" from the and release the mouse button.

Ignore Excess RETURNS: Determines if multiple, consecutive RETURN characters should be replaced by one RETURN. This eliminates blank lines and may allow more information to be seen in a window. MacRATT's default settings ignore excess RETURNS in the monitor window but not in the connection windows.

Set Ignored Characters: Allows you to set special characters that will not be displayed in the window. The characters in the box refer to control characters (see the Control Characters section), the DELETE character, and non-ASCII characters (with values greater than 127). By default, MacRATT displays everything that it receives except NULL, LINE FEED CONTROL-J, and non-ASCII characters. This option affects only what is displayed on the screen and does not affect what the Save Stream command puts into a file. The Save Stream command is discussed in the Files section.

Idle: Determines if MacRATT will alert you when new text is put in a window that has been "idle".

If you do not want MacRATT to alert you about new activity in a window, set a very long idle period. With MacRATT's default settings, the monitor window is considered idle after one hour of inactivity, and the Connection windows is considered idle after 15 seconds of inactivity.

The beep produced by the inactivity timer is overridden by the beeps for the Unread Text window. If an idle window or an obscured or invisible window receives something, MacRATT will only beep twice instead of three times.

Window Buffers

When MacRATT displays text in the Send Log, Monitor, and Connection windows, it keeps a copy of the text in an area of memory called a "buffer". Even though text has scrolled out of the window, it is still available in the buffer.

The Send Log, Monitor, and any Connection windows have one buffer each. The size of the buffer depends on the amount of memory available to MacRATT and how many optional windows are created. Buffer sizes can range from less than 7,000 characters to more than 32,000 characters. When a buffer is full, the oldest text in the buffer is discarded as needed to make room for new text.

The Communications Status window displays the number of characters each buffer can hold and the number of characters in each buffer. For instance, the example Communications Status window shown on page 6-4 has room for 32,700 characters, but contains only 1,812.

Hold Input

"Hold Input" in the "Control" menu determines whether text received from the data controller is displayed. This command is useful if you want to scroll back through the buffer to read some text. If "Hold Input" is not turned on, whenever the data controller sends a character to the MAC, the window jumps to the end of the buffer, disturbing your reading.

To hold input, click and hold on "Control", drag down the menu to "Hold Input" and release. "Control" in the menu bar will flash when the input is being held so you do not forget to resume displaying the text. Command-H can also be used to toggle the status of "Hold Input".

When input is on hold, MacRATT can continue to accept a limited number of characters from the data controller for display later. If the input is held too long, though, some data may be lost. In the host mode, you may not be able to send anything if input is on hold.

This "hold input" feature may be made consistent by selecting the "Hold input when scroll back" option in the "Miscellaneous" dialog in the "Settings" menu. Remember to save the settings after making any changes you want to keep.

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MacRATT allows you to tailor the program's operation to your tastes by adjusting many parameters. A set of parameters can be saved for use later. You can have several configurations available for different situations.

For instance, you might have one configuration for Packet operation and another for RTTY. Or you might want to have one configuration for monitoring and another configuration for when you conversing with another station. You can have several configurations available for different situations.

Keep in mind that these configuration sets control MacRATT options only. The data controller's parameters are not saved to disk. You can, however, designate a macro function in each configuration set which can change data controller parameters when you select an existing configuration if desired. See Chapter 12 for more information on Macros. The configurations supplied on your MacRATT master disk make extensive use of this technique.

Also, with a RAM backup battery in your data controller, there is no need to save parameters to disk as they are held in the controller.

SCG Saved Configuration Group

A group of settings that has been saved will be referred to as a Saved Configuration Group (SCG). Each SCG specifies the values for MacRATT's configuration, which include macros, printer configuration, automatic sending (on or off) and the state of QuickRead.

SCGs make it easy to have different MacRATT configurations for different situations. When you change a setting such as font size, it does not automatically become part of an SCG. You must explicitly save the current settings to make a change in part of an SCG.

Settings Menu

The "Settings" menu has three sections. The commands in the top section act on SCGs. The commands in the middle section allow you to adjust program settings. The items in the bottom section represent SCGs. You can select an SCG to use by choosing its name in the Settings menu. A check mark shows the current SCG.

Your MacRATT version 2.1 now has a few SCG's on the master disk to help out with operation. The following SCG's will be found at the bottom of the "Settings" menu:

- Default
- Dumb Terminal
- PK-232 Host AMTOR (use this to receive NAVTEX)
- PK-232 Host ASCII
- PK-232 Host Baudot
- PK-232 Host FAX
- PK-232 Host Morse
- PK-232 Host Packet HF
- PK-232 Host Packet VHF
- PK-232 Host SIAM (use this to receive TDM)
- PK-88 Host Mode

To use any particular mode, select it from the bottom of the settings menu. A macro will be activated which switches to the appropriate mode and may activate some additional commands and parameters. To change a macro, see chapter 12.

If you are using a PK-88, there is only one SCG because Packet is the only mode.

MacRATT Settings File

MacRATT saves SCGs in a disk file called "MacRATT Settings". This file is created in the MacRATT folder the first time you save an SCG. If you move MacRATT to a different folder, be sure to move the settings file too. Note: if your "MacRATT Settings" file is lost or becomes damaged, simply copy this file from your master MacRATT disk.

Manipulating Groups of Settings

The commands in the top section of the Settings menu work with SCGs.

Save & Save As: "Save" stores the current settings under the current SCG's name. "Save As" stores the current settings under a new name that you enter. Any changes made to the settings, the macros, the page setup configuration, or the automatic sending mode are temporary unless you use "Save" or "Save As".

Delete: Removes an SCG.

Set Startup: Selects the current SCG as the one MacRATT should use when it is started.

Changing Configurations

To change one of MacRATT's parameters, you will usually need to open a box that operates on the parameter. Each item, except one, in the middle group of the Settings menu opens such a box.

Settings Boxes

TNC: Holds setting for TNC type, terminal baud rate, data bits, parity and flow control. If you change the Host Mode setting, MacRATT may send some commands to your data controller when you close the TNC box.

Send & Send Automatically: Controls the way text entered manually is sent to the data controller. Described in the section titled "Entering and Sending Text".

Monitor Window & Connection Window: Described in the Windows sections under "Monitor and Connection Window Options".

File: Controls the way text is saved in files and is described in the Files section.

Note Window Locations: Stores the current locations, sizes, and appearance (visible or hidden) of MacRATT's windows. If you rearrange the windows and want the arrangement to become part of an SCG, use this command.

Starting and Quitting Actions: Controls what MacRATT does when you start and stop it. The settings in this box are described in the Starting and Quitting section.

QuickRead: Controls whether QuickRead commands are sent immediately, regardless of the setting of "Send Text Automatically", and which BBS commands are available on the QuickRead menu.

Miscellaneous: Settings for font size, "Hold Input when Scroll Back", and amount of time to add or subtract from data controller clock. The last choice allows the Mac to be on local time and the data controller to be on UTC.

Control Panel

Settings Boxes

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Entering and Sending Text

This section describes how you can enter text and send it. To send text in files, refer to the Files section.

Manual & Automatic Sending

You can send text to the data controller manually or automatically. With manual sending, you explicitly control when text is sent. This can be done in one of three ways after entering your text: Press Enter (not Return); hold down the Command Key and press Return; or select "Send Text" from the "Control" menu. Manual sending is useful on packet because data is usually transmitted a line or more at a time. Since the text is sent manually, you can work with your text before sending it.

With automatic sending MacRATT sends characters when certain conditions are met. This is useful for modes such as RTTY, AMTOR, and Morse, when each character is sent individually and the receiving operator would become impatient if text were sent one line at a time.

To select automatic sending, select "Send Text Automatically" from the "Control" menu. A check will appear by that selection the next time you use the "Control" menu, indicating that function is active. To send text manually, repeat the above procedure. The check will disappear, and MacRATT will go back to manual sending. Save your preferred setting with "Save" or "Save As" in the "Settings" menu.

The Send Window

With manual sending, the Send window is a work area for editing text before transmitting it. The send window scrolls and supports many of the standard Macintosh editing functions such as moving the insertion point with the mouse and transferring characters between the window and the Clipboard. The arrow keys, with or without the "Command" key, can be used in the "Send" window.

Text pasted from the Clipboard behaves as if it were typed into the send window.

The Send Log

The Send Log window keeps a copy of text that you have put in the output queue. This is extremely useful in automatic sending, as the text will not show up in the Send Window. If you are operating AMTOR or another HF mode and automatic sending is enabled, select "Show Send Log" from the "Windows" menu to see what you are typing in.

Send Options

There are several options in the Send box of the Settings menu that affect how text is sent. When the first option is selected, MacRATT will append a Return to text before sending it to the data controller. This is convenient for controlling the data controller and for conversations because most commands or transmissions end with a Return.

The second option causes the Return key to perform the same function as the Enter key in addition to putting a Return in the text. When the second option is selected and Return is pressed, MacRATT will put a Return at the insertion point and then send any text in the window. You will probably not want to use the first and second options simultaneously because you might send two Returns when you intended to send only one.

The third option tells MacRATT if it should “wrap” the text you send. When this option is enabled, MacRATT inserts Returns to keep lines shorter than a length specified by you. This prevents words from being split between lines on the recipient’s screen. MacRATT inserts a Return only where there is a space and never in the middle of a word.

There may be a difference between the line breaks in the Send window and the lines as they are actually sent. The formatting in the Send window is controlled by the Returns that you enter and by the width of the window. When the text is sent, new lines are started where you entered a Return and where MacRATT inserts Returns if the wrap option is turned on.

For example, suppose your Send window is 80 characters wide and contains:

This is an example of the effect of the wrap setting.

If you have MacRATT wrap lines so they are shorter than 20 characters, the recipient will see:

This is an example
of the effect of
the wrap setting.

That is also what you would see in the Send Log window. If you set the wrap options so lines sent the same number of characters that fit across your Send window, there are no differences between what you see and what you send. Wrapping only affects text that is entered in the Send window and does not affect text sent from a file.

The Set Immediate Characters button allows you to set which special characters will be sent as soon as they are entered rather than being put in the Send window. Single-character labels refer to control characters.

Automatic Sending

When you send text automatically, what you type is put into the Send Log window although it may not be sent immediately. Typing a character may cause some text to be sent. The only editing you can do while sending automatically is backspacing over characters that have not been sent to the data controller. The "Send Automatically" box in the Settings menu contains options that determines when MacRATT sends the text.

Send text up to last Return: Sends any text in send window when a RETURN is entered with the Return key.

Send text up to last control character: Allows you to embed control character in text to switch from transmit to receive (Control-D). Control-G and RETURN are not considered control characters by this option.

The fourth option allows you to force text to be sent after you have entered a certain number of following characters. If this option is turned on and the number of following characters is zero, then a character will be sent as soon as you type it.

The other two options related to automatic sending allow you to automatically replace some spaces with a RETURN (to keep your lines shorter than a specified length) and to have the last character sent marked in the Send Log window by inverting it.

When you change from automatic to manual sending, all entered text that has not been sent is sent.

Destination of Text

The title of the Send window indicates whether the window's contents will be interpreted as data controller commands or data and which of the data controller's "streams" or channels will receive the text.

You can switch the destination stream by choosing "Set Send Destination" in the "Control" menu or by pressing Option-Command <digit> where digit is a number from 0 to 9.

As connections are made, the call sign of the station you are connected to will also be displayed. See the section "Multiple Connects in Packet", page 4-4.

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PK-232 Host Mode

Please note that while this chapter deals mainly with the PK-232, the same information also applies to the PK-88 where applicable.

MacRATT takes advantage of the PK-232 interface to provide you with a very powerful yet easy-to-use digital station.

MacRATT uses AEA's Host Mode program interface (see page 6-1) with the PK-232. The Host Mode will remain active even when you are using any of the PK-232's communication modes (such as packet, RTTY, AMTOR, FAX, etc.). Note that the host mode or FAX operation requires ROM dated June 1987 or later.

MacRATT supports on-screen display of FAX images. You can also use the "Redirect Text to Printer" to print FAX pictures. (Note that MacRATT cannot redirect text to a Laser-Writer.)

Host Mode Parameters

The Host Mode Parameters box in the Settings menu contains several options for host mode operation with the PK-232.

Change is the default for YES/NO commands: Determines if the default button should change the value of a YES/NO parameter.

Only show pertinent commands: Limits the displayed commands to those pertinent to the PK-232's current mode, such as Baudot.

Only show common commands: Limits the displayed commands to the most common kind, for quicker, easier selection. If you choose this option, the selection menu contains a button that lets you see the uncommon commands, too.

Confirm command execution: Determines if the new value of a parameter will be shown in the Monitor window.

Command List

MacRATT offers several ways to select commands. You can click and hold on "Control" and drag down to "Command Mode" and release; click on "Command" in the Send window; or press Command-M. MacRATT then displays a list of commands. A brief description of each command is available to remind you of its function and arguments.

When the list of commands is displayed, each command is followed by its abbreviation in parentheses. For instance, the "C" in the line "CONNECT (C)" is the abbreviation for "CONNECT".

Automatically Executed TNC Commands

The quickest way to execute a command is to use Command-M, type the abbreviated identifier for the command, and press Return. The abbreviations of commands are assigned by the manufacturer. If you select a command that requires an argument such as "Yes" or "1200", MacRATT displays the current value of the parameter and prompts for a new value.

When MacRATT enters PK-232 host mode, it sends the data controller several commands. The data controller may be unresponsive for several seconds while it is executing these commands.

If you turn off host mode, MacRATT sends three Control-Cs to the data controller to leave host mode. The Control-Cs may not force some older data controllers out of host mode. If you have a PK-232 with a ROM released before June, 1987, and you leave host mode and cannot get the data controller to respond to you, try the Send Break command in the Control menu or send the data controller the 6 characters Control-A, "O", "H", "O", "N", and Control-W (those are ohs, not zeros).

Polling

Most data controllers will send text to the computer whenever new text is ready, unless this is inhibited by flow control. When the PK-232 is in host mode, however, it will send text to the computer only when the computer asks for it.

This has several implications. If the Mac is busy doing a task, such as a long computation or displaying a dialog box, the data controller will not be able to send anything to the Mac. Since the Mac could probably accept some text in these situations (even though it is busy), the data controller's internal buffer for holding text may overflow sooner in host mode than it would when the data controller is not in host mode.

Also, you cannot stop the flow of text from the data controller by sending it an XOFF character. If you want the data controller to temporarily pause in its sending to MacRATT, use the Hold Input command.

An advantage of the polling feature is that you do not have to send an XOFF character to the data controller to have it stop sending text to the Mac. Quitting MacRATT is sufficient to cause the data controller to hold text it would normally send to the computer.

Communications Status Comments

For each packet connection, the comments field of the Communications Status window will display the number of unacknowledged packet frames the data controller is holding and the number of retries attempted. These values will lag a couple of seconds behind the data controller's actual state.

Limitations

The values of the COMMAND, CMDTIME, XON, and CAN-LINE data controller parameters must not be changed from their default values. There may be a short delay between the entry of commands or data and the time they are sent to the data controller.

If you are holding input (with the Hold Input command in the Control menu), all of the links may be busy and commands may not be sent to the data controller. A copy of commands executed is not put in the Send Log window when text is sent automatically.

The PK-232 does not support these commands in host mode: CALIBRATE, CONVERSE, CSTATUS, DISPLAY, HELP, TRANS. The OPMODE command is not available, but the data controller's communications mode is displayed under the button in the Status window. MacRATT may not notice mode changes for several seconds.

For packet, the mode (CONVERSE or TRANS) for sending data is controlled by the setting of CONMODE. The only differences between CONVERSE and TRANS modes while the PK-232 is in host mode is that the data controller parameters 8BITCONV, ALFPACK, ALFDISP, CASEDISP, and ESCAPE are active in CONVERSE mode but not in TRANS mode. This means that if you send text to the data controller a character at a time, it may be sent a character at a time. This is usually not desirable.

The STA and CON lights on the data controller may blink when MacRATT checks the data controller's status.

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To Receive a Fax Picture

For information on basic FAX operation, please consult the "Fax Manual Appendix" in the PK-232 Operating Manual. The instructions below assume that a FAX station has been tuned in on your HF radio.

First, select "Create FAX Window" from the "FAX" menu. At this point, a "Create FAX Window" dialog box will be presented.

Click on the "Low Resolution" box. A FAX window will fill the screen with the title reading, "Untitled FAX Picture".

Click and hold on "FAX" again, drag the pointer to "Receive Picture", then release. The PK-232 is now in the Fax Sync Receive mode.

Justification

Previous Fax mode users will now be wondering why the PK-232 was placed into the Sync Receive mode before the a FAX Picture has been started, and whether it can justify the picture.

MacRATT has the capability to justify the FAX picture *as it is being received*. For instance, the Fax station has started sending a picture, and as expected, the FAX picture is out of sync. By that, we mean that the left edge of the FAX picture does not line up with the left edge of the monitor display.

To line things up, click and hold on "FAX". Drag the pointer down and release on "Set Line Start". The pointer is now displayed as a small cross. Position the small cross in the middle of the solid black vertical line in the FAX image. Click the mouse button once, and the FAX picture will now be properly justified.

Save FAX Picture to Disk

Once the FAX image is complete on the screen, you can save the image to disk.

Select "Receive Picture" from the "FAX" menu to turn "Receive Picture" off. Then select "Save Picture As", also on the "FAX" menu. MacRATT will prompt for file name.

FAX Commands and Features

Show FAX Window: Makes the FAX window visible and brings it to the front.

Remove FAX Window / Create FAX Window: Removes and creates the FAX window. Removing is permanent. To temporarily hide the window, close it.

Receive Picture: Turns on and off accepting data for a picture. In the FAX Parameters, you can choose to have MacRATT automatically force the TNC to lock on the signal when you select+ Receive Picture. This is the default. MacRATT configures the TNC for FAX operation when you start receiving a picture.

When you stop receiving a picture, MacRATT optionally puts the TNC in standby mode. In standby mode, the TNC locks onto a signal when it hears the synchronization signal at the start of a picture. When you turn off "Receive Picture" you might see some gibberish in the Receive or Monitor window.

Force Signal Lock: Forces the TNC to start decoding a signal and sending data to the Mac. Normally, the TNC leaves standby mode only when it copies the synchronization signal at the start of a picture.

Enter Standby Mode: Forces the TNC into standby mode.

New Picture: Clears the FAX window.

Open Picture: Opens a picture file you saved previously with MacRATT.

Save Picture: Saves the picture.

Save Picture As: Saves the picture after prompting for a file name. You can specify a MacPaint file (that cannot be read by MacRATT) or a PICT file that can be read by MacRATT (and by programs like MacDraw).

FAX Parameters: Allows you to set options that control how pictures are displayed and handled.

FAX Parameters

Picture Orientation

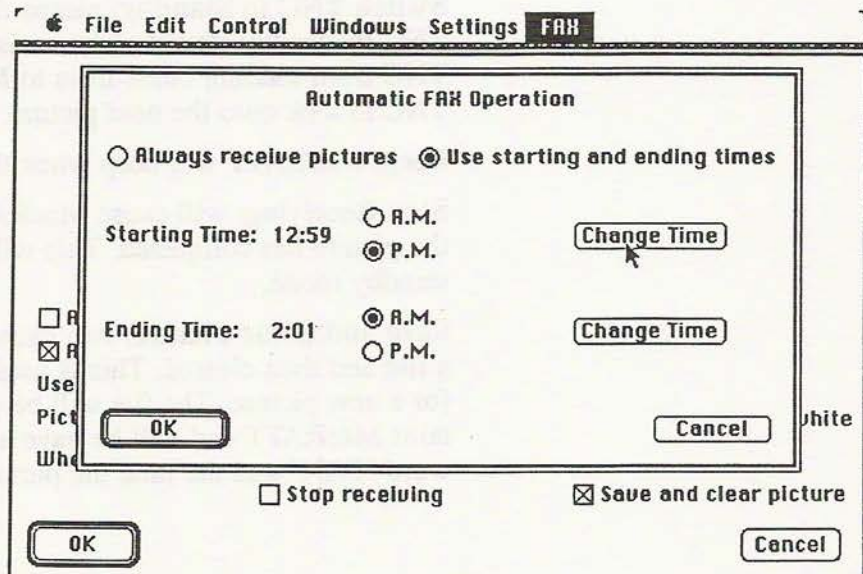
Orientation and configuration: Determines how the picture will be displayed on the screen. The arrow in the rectangle indicates where the first line received will go and the scan direction. The lower row of rectangles should be used when the picture looks as if you are looking at it in a mirror. Changing the picture's orientation can be time-consuming if the FAX window contains more than a few lines of data. You can change the orientation while you are receiving a picture, but if MacRATT spends a long time rearranging a picture while you are receiving you may miss some of the picture.

Automatic Fax Operation:

The box next to the word simply turns the Automatic FAX mode on or off. Clicking on the box labeled "Set Auto FAX Options" allows you to configure the Automatic FAX mode.

Specifications made in the Automatic FAX Operation dialog box will only become active if the "Automatic FAX Operation" box is selected, as denoted by an X.

Like setting your VCR to record your favorite program, at the same time every day, the Automatic FAX mode will set MacRATT to save a series of FAX pictures at the same time every day. If you wish to have MacRATT start and stop saving FAX images to disk at the specified times, then select the "Use starting and ending times" as shown below.



Use starting and ending times

There may be other occasions where you wish to save FAX pictures at times OTHER than what was specified as start and stop times. In this case, click on the "always receive pictures" option.

Other Parameters

Invert: Changes black bits to white and vice versa. This will change existing lines and will change how new lines are treated.

Force Sync: determines if MacRATT will force the TNC to lock onto a signal when you turn on Receive Picture.

Number of lines: determines how compressed or stretched the picture will look. 2 and 4 lines out of 6 are usually appropriate for low and high resolution windows, respectively.

Picture ends when...: determines how MacRATT determines when a picture ends. If TNC Switches to Standby is checked, then MacRATT recognizes the signal the TNC gives when it sees the end of a picture. Sometimes the transmitting station does not mark the end of a picture, so you may want to turn on the option to interpret mostly white lines as marking the end of a picture.

When the Picture Ends

You can choose the actions MacRATT takes when the picture has ended.

Switch TNC to Standby: means that MacRATT will force the TNC to standby after the picture is through. This prevents the TNC from sending blank lines to MacRATT and prepares the TNC to lock onto the next picture.

Beep: MacRATT will beep when the picture is through.

Stop Receiving: will cause MacRATT to stop receiving after the picture has completed. This will also force the TNC into standby mode.

Save and Clear Picture: will cause the picture to be saved in a file and then cleared. This is useful to automatically prepare for a new picture. The file will be put in the folder that contains MacRATT and will have a name consisting of the word "FAX" and the time the picture was saved.

Picture Appearance

Reduce, Enlarge, Normal Size, and Reduce to Fit: Allows you to reduce and enlarge the picture so you can see more of the picture or more detail.

Change Isolated Pixels: Changes dots that are surrounded by dots of the opposite color. This will clean up some of the garbage in a picture. Doing this more than once will not improve the picture unless new lines have been added.

Set Line Start: Presents you with a cross hair that you should use to indicate where lines should start. If you want to cancel this, click the mouse while the cross hair is outside the window. Setting the starting point of lines is useful when you have forced the TNC to lock onto a signal in the middle of a picture and the picture wraps around the edge of the window. The new line start will affect lines in the window and lines that have not been received yet.

Page Setup: Prompts you for the size of your printer's paper. MacRATT ignores most of the information set by this command and tries to print the picture so it will appear as large as possible.

Print Picture: Prints the picture. On a LaserWriter 2 lines of pixels may not be printed to allow the sharpest printing of the picture. This should not cause a problem in most cases.

FAX Notes

If you keep the computer busy for too long, by setting parameters in a box or examining a menu, for instance, you may miss some lines of the picture. You may also see some gibberish in the Receive or Monitor window.

You may want to set the Receive or Monitor window to "Ignore Special Characters" in case some FAX data is put in this window.

If your Mac has only 512K of RAM, it will not be able to receive pictures at high resolution.

If you are using MacRATT under MultiFinder, you will have to increase the suggested memory size of MacRATT to 600K or more to have enough memory to create a high resolution window. Use the Finder's "Get Info" command to change the suggested memory size.

Print Head Warning

Printing *a lot of black* causes the temperature of the Imagewriter print head in the printer to rise. It is possible to raise the temperature to a point where print head damage could occur. The early Imagewriter printer was not equipped to protect itself from excessive heat. Please check your printer manual to see if your printer has thermal protection circuitry.

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Sending a File

You can use MacRATT to send (upload) text files to the data controller and to save (download) text into a file. The commands to do this are in the File menu.

MacRATT sends only text files. These are files that contain characters but no formatting information about margins, fonts, etc. You can create a text file with most word processors by specifying "Text Only" or "ASCII" when creating or saving the file.

To send a text file to the data controller, click and hold on "File", drag the pointer down to "Send File", and release the mouse button. You will be asked which file to send.

MacRATT sends the characters in the selected file to the data controller using the stream and the mode (command or data) indicated in the "Send" window. While the file is being sent, a check mark appears next to "Send File". If you want to stop sending the file before it is finished, just click on "Send File" again.

Text sent from a file is treated differently from manually entered text. No carriage returns will be inserted in text from a file. Also, when you send a file, nothing is displayed in the "Send Log" window.

Two Ways to Save Text to a File

Save Stream: To save the stream of characters that is appearing in the front window, click and hold on "Files", then drag the pointer to "Save Stream" and release.

For example, if you want to save text that appears in the Send Log window, select "Save Stream" as above, and choose a file to hold the text. A check mark by "Save Stream" indicates that characters are being saved to a file. You can cancel stream saving by clicking on "Save Stream" again.

The "Save Stream" command works on whatever window is in front. If you wish to save text coming into a hidden window, move that window to the front before you click on "Save Stream". Likewise, when you want to stop stream saving, move the appropriate window to the front before you click on "Save Stream". However, once "Save Stream" is enabled, that window may be moved to the background, and the saving of data will still occur.

You can save multiple character streams simultaneously, but a different file must be used for each stream. Thus, you can simultaneously save the text for the "Monitor" and "Send Log" windows, but you cannot have all of the characters go into the same file.

When you are redirecting text from the "Monitor" window to the printer, you can still save the stream in a file. Nothing will appear in the monitor window, but text will be put in the file.

Save Selection: The other method of saving text is to select some text in a window with the mouse, click and hold on "File" drag down to "Save Selection" and release. The saved text will only include those characters selected in the window. Anything not selected in the window is ignored.

More About Saving Files

With both methods of saving text, a box appears asking where the text should go. If you want to create a new file, click on "Save". If you want to append the text to an existing file (add new text to the end of the file), click on "Append".

In the "Settings" menu under "File" is the "Ignore Special Characters" button. It allows you to choose which characters are not put in files. "Single" characters refer to control characters. Usually, you will not want NULL, LINE FEED (Control-J), and non-ASCII characters (those with values greater than 127) put into a file.

However, if you are saving non-text data, such as printer commands for a FAX picture, you should not ignore any characters. You should probably be using eight data bits and no parity bits for the serial link between the Mac and the data controller.

Note that different "Ignore Special Characters" settings can be chosen for windows and files.

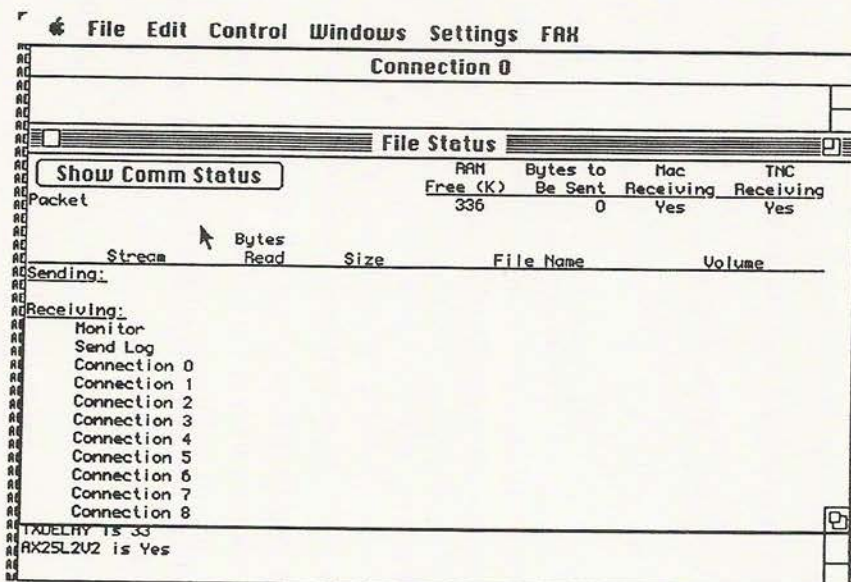
Owner of Text Files

All Macintosh files have an owner (also known as a creator). The owner determines which icon the file will have and may determine which programs can open the file. For instance, if a file is owned by a painting program, the file's icon will be related to the painting program's icon. In this case, opening the file from the desktop will start the painting program.

In the same way, if you use a word processor to edit files saved with MacRATT, you should make that program the owner of the files. To do this, click and hold on "Settings", drag the pointer to "File" and release. Then click on "Set File Owner". Choose the application which should own the files created by MacRATT. This information will become part of your parameter group if you use "Save" or "Save As" in the "Settings" menu.

File Status Window

The File Status window displays the status of your uploading and downloading. In the example window, you can see the name of the file, its size, and the number of characters that have already been sent to the data controller. It also shows that text from the Send Log window is being saved in the file named "log file" and shows the size of that file. If "Append" is used to select the file, the file size includes characters that were already in the file.

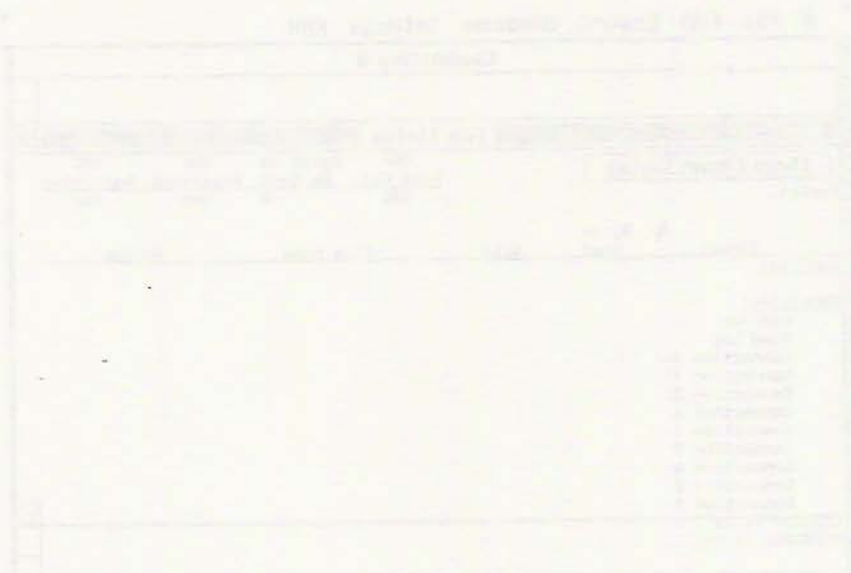


File Status Window

Error-42 Too Many Files Open

MacRATT allows you to work with several files at once. You could be simultaneously sending one file and saving text into 12 other files.

The Macintosh operating system has a limit on how many files can be open simultaneously. If a system error 42 occurs when you try to open a file, the maximum number of files are already open. This is a limitation of the Macintosh system software, not of MacRATT.



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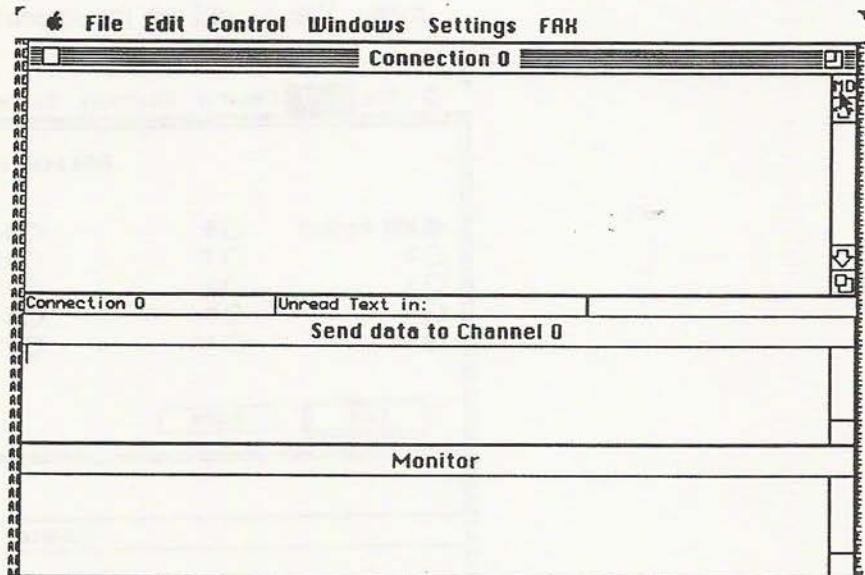
Page 45
Too Many
Files Open

MacRATT can store 20 macros in each SCG (see chapter 7, Settings). A macro is short string of text or commands that you can call up with a minimum number of keystrokes or mouse movements.

When a macro is available, MacRATT displays a small "M" above the scroll bar of the active window. You can call up a list of macros by clicking on this box. Macros can also be called up from the keyboard.

Note 1: If the window is too small, the scroll bar displaces the "M". To make the small "M" visible, either make the current active window larger or switch windows.

Note 2: The small "M" and the pop-up macro list do not display with System Software 4.1.



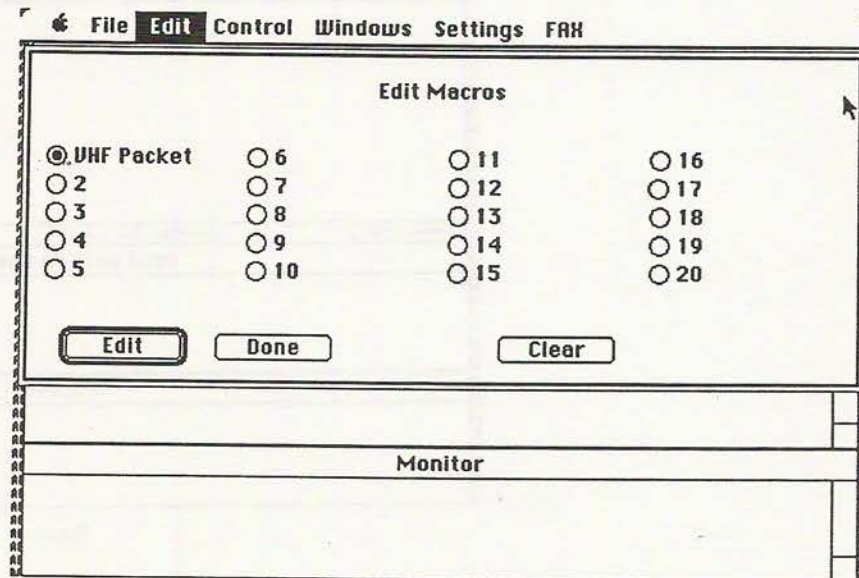
Small M

Creating a Macro

Macros can be generally one of two types. One, data that can be sent to the screen, or two, commands that the data controller will execute. For this example, assume that you want to make an macro key that will put the PK-232 into the VHF Packet mode (this is just an example; a VHF Packet macro and SCG already exists on the MacRATT disk). This is obviously a macro that will invoke a command in the PK-232. You will be calling upon the same command list that you have been using all along to make connects, enter MYcall, etc. Because MacRATT generally displays commands that are pertinent to the mode you are in, start by placing the PK-232 in the Packet mode before writing a macro.

Press a Command-M to display the command mode, then select "Packet (PA)" to place the PK-232 in the Signal Analysis Mode. Later, when you start selecting commands for the macro key, the command mode will display all pertinent commands.

To start creating a macro, select "Edit Macros" from the "Edit" menu. You should see the screen below:



Edit macros

Select a number from one to twenty. In this case, use number 1. It should be noted that when you show a list of macros to choose from, the order that you place them on this screen will be the same order in which the macros are presented. You may want to place the most commonly used macro in position one and the least used macro in position 20.

Now use the mouse to press "edit" to see screen shown below.

File Edit Control Windows Settings FAX

Name: Saved Text File

Immediate Data Mode Command Mode

Execute when these settings are chosen Execute when start

Execute when different settings are chosen Execute when quit

First execute:

VHF Packet 6 Nothing 16

2 7 11 17

3 8 12 18

4 9 13 19

5 10 14 20

Afterwards execute:

VHF Packet 6 Nothing 16

2 7 11 17

3 8 12 18

4 9 13 19

5 10 14 20

Macro settings

The first step is to give the macro a name. In this case, type "VHF Packet" in the box titled "Name". Just to the right of the name box, there are two selections, "Saved Text" or "File". If you are writing a macro to send a file, then click the "File" option, otherwise leave as "Saved Text". In this example, you are not sending a file, (you are making a command), so leave "Saved Text" selected.

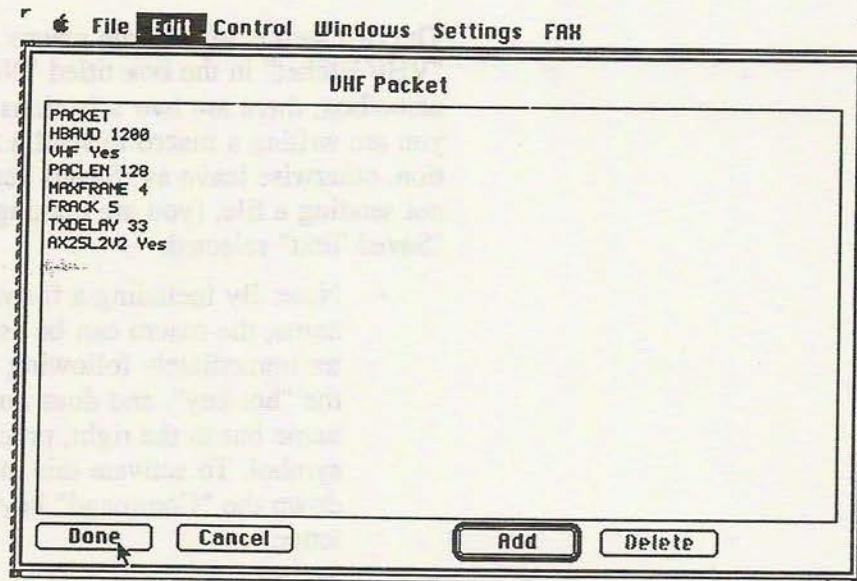
- Note: By including a forward slash (/) in the macro name, the macro can be assigned a "hot key". The letter immediately following the forward slash becomes the "hot key", and does not show up in the macro name but to the right, preceded by the cloverleaf symbol. To activate this macro with its "hot key", hold down the "Command" key and press the appropriate letter.

The next line down has three options, "Immediate", "Data Mode", and "Command Mode". Again, if the macro is being written to issue a command, choose "Command Mode". If the macro is being written to send data, then select "Data Mode" and then decide if the data is to be sent immediately or not. If "Immediate" is selected, (an "X" in the box), then the data specified by the macro key will be sent to the serial port to be transmitted by the data controller. If on the other hand "Immediate" is not selected, then the data specified by the macro will be sent to the Send window and will be sent manually. Please note that when "Command Mode" is selected, "Immediate" is no longer an option because all commands are immediate.

For this example, the next two lines will be ignored. The "Execute" options are explained below (See "Execute..." below). For a command macro, you have made all of the selections necessary on this screen, so now move the pointer to the word "Continue".

Press the mouse button to continue. Pressing Return regardless of the pointer position will also "Continue".

Pressing Return or moving the pointer to the work "Add" and clicking once will cause the "Command Mode" to be displayed. If the desired command is not displayed, position and click on "Uncommon" to see the uncommon commands. Position the pointer over the command you wish to include in the macro and double click. You will be returned to the macro screen. If more commands are desired, click on "Add" again. Once you are done entering commands, your screen will look similar to this:



You are done with the PACKET portion of the macro, so position the pointer to the box titled "done" and click once.

Click on the box "done" and you are now presented with the option of saving to disk. Pressing Return will save the newly created macro to the current SCG. You will now also notice that a small "M" will now appear at the top of the scroll box.

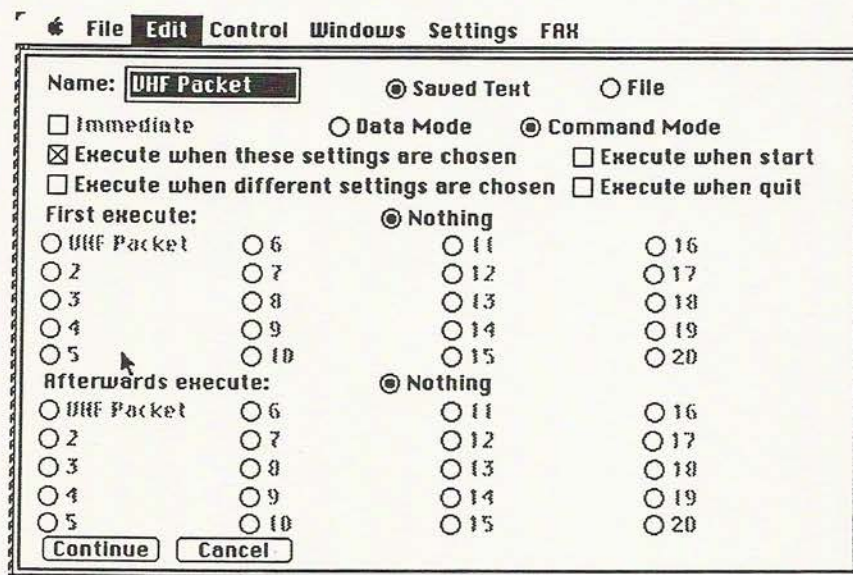
Execute a Macro

Make the Monitor window active by positioning the pointer anywhere in the Monitor window and clicking once. At the top of the scroll box, position the point over the small "M", click and hold. To activate any macro, drag the highlighted bar over the desired macro and release the mouse button.

Macros can also be executed with either the Option or Shift+Option keys. To send macros 1-10, press the number of the macro while holding down the Option key. For instance, to execute macro 2, hold down the Option key and press 2. For macros 11-20, use the Shift+Option keys. To execute Macro 12, hold down the Shift and Option keys and press 2.

Execute...

When editing macros, there are four "execute" options as shown in the screen below:



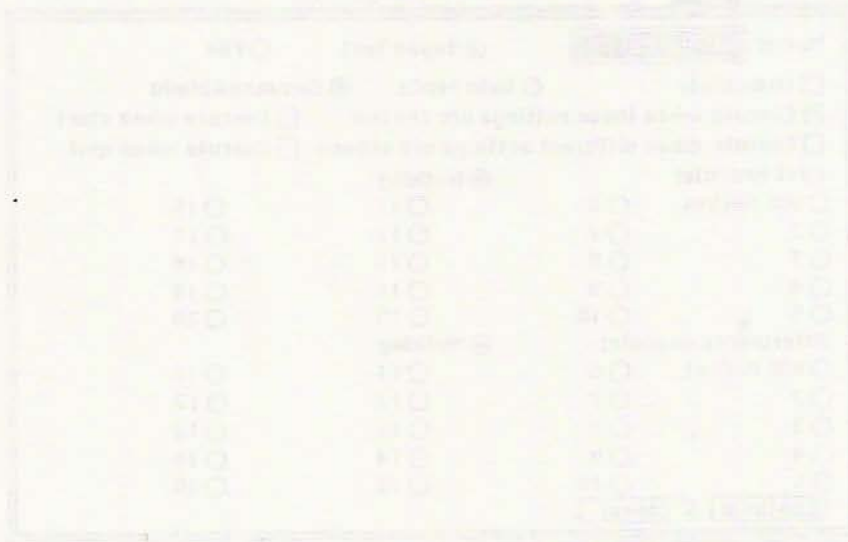
These four options specify when a macro should automatically execute. "Execute when start" and "Execute when quit" refer to when MacRATT starts and quits.

"Execute when these settings are chosen" and "Execute when different settings are chosen" allow the macro to be executed every time a certain SCG is selected (see chapter 7). This is how the PK-232 is set up for HF Packet when the SCG called "PK-232 Host HF Packet" is selected.

When MacRATT is started, macros identified by "Execute when start" and "Execute when these settings are chosen" will be executed (in that order). When you quit MacRATT, macros identified by "Execute when different settings are chosen" and "Execute when quit" will be executed (in that order).

Saving Macros

Once a macro has been created, MacRATT will ask if you wish to save it. You may either do so at this time, or choose the "Save" option from the settings menu.



Starting & Quitting Actions

Automatic Actions

To set MacRATT's starting and quitting actions, click and hold on the "Settings", drag down to "Starting and Quitting Actions" and release the mouse button.

The "Startup Settings" control MacRATT's actions when it starts, and the "Current Settings" control MacRATT's actions when it quits. To make any changes permanent, you must use "Save" or "Save As" in the "Settings" menu.

Send XON XOFF Characters

As mentioned previously, a data controller operating in the Host Mode is instructed or polled as to when to send data. In Host Mode, XON and XOFF flow control characters do not control the data flow. With a PK-232, PK-87 or PK-88, this option is not needed

You can have MacRATT send the XON character to the data controller when you start and the XOFF character to the data controller when you quit. This is useful if you want the data controller to hold received information for you while you are not using MacRATT.

For example, as you quit MacRATT, you might want to turn on the data controller's connect message, turn off monitoring, and send an XOFF character to the data controller. And when you start MacRATT, you might want to send an XON character, turn on monitoring, and turn off the connect message.

This would allow people to connect to your station and leave messages in your data controller while you away. The connect message tells people calling that they can leave you a short message. The data controller holds the messages because you sent it the XOFF character. Monitoring is turned off so that other people's conversations do not fill the data controller's memory.

When you start MacRATT and the XON character is sent to the data controller, any messages in the data controller's memory would be sent to MacRATT.

Set TNC Clock

MacRATT will attempt to set the TNC's clock on start up if the data controller is on and in the Host Mode. You can also perform this function yourself if you wish. Click and hold on "Control" in the menu bar and drag the pointer down to "Set TNC Clock" and release the mouse button.

Create Connection Windows

You should have MacRATT create at least one connection window when it starts. This will result in the most efficient use of the Mac's memory. If you use System 7 or MultiFinder, you should consider how many other connection windows to create. More connection windows may result in smaller buffers for the Monitor window, the Send Log window, and the first connection window.

Sequence of Starting Events

When MacRATT starts, it loads the Saved Parameter Group (SCG) you previously selected as the startup group. If there is no SCG, then default parameters are used.

If a key was pressed while the copyright notice displayed, no other actions are taken. Otherwise, MacRATT sends out any options that have been selected, such as the XON character, the clock set function, puts the data controller in command mode and sends it any commands you have specified in startup macros.

Sequence of Quitting Events

The current settings control the actions taken before MacRATT quits. After you select "Quit", MacRATT checks if any there is any text waiting to be sent (see the Output Queue section for details). If there is, MacRATT confirms that you do not want it sent and then clears the output queue. Next MacRATT puts the data controller in command mode and sends the quitting actions.

The quitting actions are sent to the Send window's current stream. If a macro cannot be opened, an error message is displayed and MacRATT will not quit. After sending the commands, MacRATT waits several seconds for the data controller's responses. Then the XOFF character is sent, if requested.

Depressing the Option key while selecting Quit from the "File" menu causes MacRATT to quit without executing any quitting actions.

Macro Execution

MacRATT can be instructed to execute any of your macros upon startup or when quitting. To do this, select the "Execute when start" or "Execute when quit" options on the parameter screen for the macro in question (see page and 12-6).

Imagewriter Setup

MacRATT will print to the Apple Imagewriter and almost any other dot-matrix printer.

Before MacRATT can print anything, the appropriate printer driver must be in the system folder on the system disk. For most people, this means having the Imagewriter file in the System Folder. The Page Setup command in the File menu allows you to adjust some printer parameters to suit your preferences. If the Imagewriter control is set, then MacRATT adjusts the Imagewriter printer to use slashed zeros and sets the type size to the ones elected in the setup box.

Setup for Other Printers

If you are not using an Imagewriter, you will have to choose the number of characters per line that corresponds to your printer's characteristics. MacRATT will not print text to a LaserWriter printer.

If you are familiar with your printer's commands you can send it an "initialization string" before MacRATT starts to use it. See your Macintosh manual for more information on printer initialization strings

Control-P: Used in an initialization string to cause MacRATT to pause briefly.

Left Margin: Controls the width of the left margin on the page.

Wrap Words: Moves words that would extend past the end of the line down to the next line rather than splitting them between two lines.

Skip Perforations: Causes the printer to skip the perforations between pages.

Go to New Page when Done: Causes the printer to eject the current page and go to a new page when you are done printing.

These setup options are saved with a Saved Configuration Group, so to make your setting permanent, use "Save" or "Save As" in the "Settings" menu.

Print Appearance

Printed output may differ significantly from what you see on the screen. This is caused by the "wrap words" feature and differences between screen and printer line lengths. Also, special characters are not sent to the printer unless you are redirecting text from the Monitor window.

Redirecting Text

When you enable "Redirect Text to Printer", any text that would normally appear in the Monitor window is sent to the printer instead. While this option is enabled, no new text will appear in the Receive window. Text is sent to the printer exactly as it is received from the dat controller.

To enable or disable redirection, click and hold on "Files", drag the pointer down to "Redirect Text to Printer", and release the mouse button.

Note 1: MacRATT loses track of the position of the print-head on the page when you redirect text, so when you are done, enable the option to go to a new page.

Note 2: MacRATT cannot redirect text to a LaserWriter.

One of the design goals for MacRATT was minimizing the time the user has to wait. As a result, you can work with the windows, enter text, or reach desk accessories almost any time.

To make this possible, MacRATT may have to temporarily store text that you want sent. This is necessary because the data controller can only accept a limited amount of text at a time and because the Macintosh can send text to the data controller much faster than the data controller can transmit it and receive an acknowledgement.

If you send a group of 2,000 characters, for instance, the data controller may accept 1,000 of them immediately and accept more later after some of the first 1,000 have been acknowledged.

Usually you will not have to worry about MacRATT holding characters that you want sent. When you deal with large blocks of information, though, you should keep in mind that text is not always immediately sent to the data controller when you press the Enter key.

When MacRATT is holding some data for the data controller, for instance, any commands you want the data controller to execute may have to wait for the data to be sent. Also, if you try to quit while MacRATT is waiting to send something, you will receive a warning message.

The Output Queue

Commands have higher priority than data in the output queue, so any commands in the queue are sent before data. This allows you to retain control over the data controller even when you are sending a large amount of data.

Commands in the queue are sent in first-in, first-out order. When there are no commands in the output queue, MacRATT examines the data in the queue in first-in, first-out order and sends as its first block text which is destined for a stream or channel that is not busy. Thus text may be sent in an order that is different from the order you entered it, but it is sent as efficiently as possible.

Both status windows show how many bytes are in the output queue waiting to be sent. If a file is waiting to be sent, its contents will be included in the count of bytes in the queue. If you have requested that a break be sent, it may also have to wait in the output queue. Since the break signal is not a character, it will not be included in the byte count, either. The Communications Status window also provides a breakdown of the destination of the bytes to be sent.

Kill Pending Output

After telling MacRATT to send some text, you may decide that you do not want the text sent. For instance, you may start to send a large block of information to someone, but before the transmission of the block is completed, the path to the other station may become unusable. If the information is in a file, you can stop sending the file by reselecting the "Send File" command.

If you entered the information in the Send window, select "Kill Pending Output" from the Control menu. This cancels all requests to send information that have not been completed yet. An unavoidable side effect is that what the data controller sends to the Mac at that moment may be lost. Using this function will probably produce an error message saying that the data controller is not responding. This is normal and does not indicate a problem.

If your data controller responds to XON/XOFF flow control you can avoid this side effect: Send the data controller a Control-S to tell it not send anything to the Mac, select "Kill Pending Output", and then send the data controller a Control-Q to resume normal communications between the data controller and the Mac. Note that even after you kill the pending output, the data controller may still try to send text that is in its internal buffer.

If MacRATT Won't Send Anything

If you find that MacRATT will not send anything to the data controller, look at a status window to see if MacRATT thinks that the data controller has stopped receiving. This state can be caused by garbage on the serial line or by monitoring an XOFF character. If this happens, and you are sure that the data controller did not tell the Mac to pause, use the data controller parameter box in the Settings menu to indicate that the Mac should not recognize any flow control. This will cause the text in the output queue to be sent. After MacRATT starts sending the text, change the flow control parameter to its original value.

Another reason that MacRATT may stop sending data to the data controller that "Hold Input" has been selected. You can tell if this is the case, by looking at the menu bar. If the word "Control" is flashing, click and hold on "Control", drag the pointer down to "Hold Input", and release the mouse button to turn the option off.

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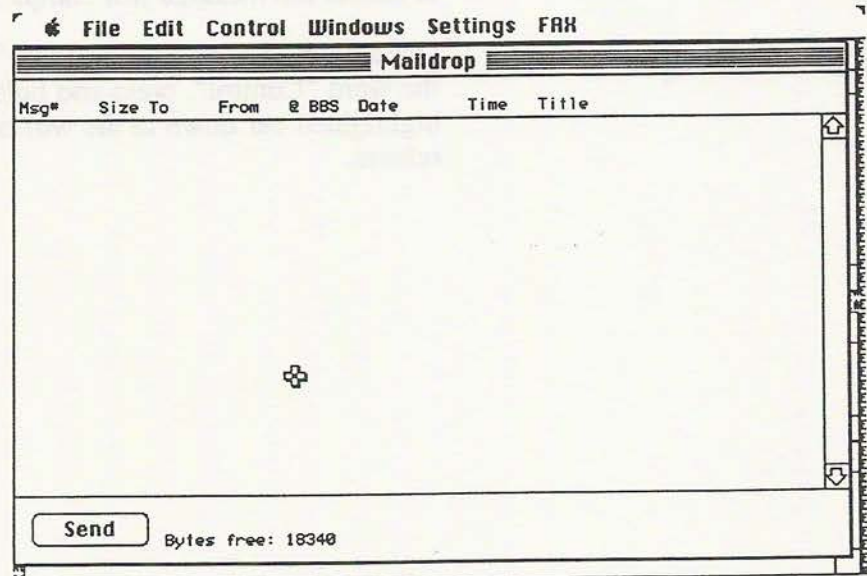
This chapter is geared toward the PK-232MBX; however, the PK-88's maildrop is identical in function and will use the same procedure.

The Maildrop function is described in detail in the PK-88 and PK-232 Operating Manuals. Maildrop commands (except MDC - Maildrop Check) are available from the Command Mode, (Command-M). Maildrop Check is explained below.

Maildrop Check

You observe that the "STA" led on the front panel of your PK-232 is flashing, alerting you that mail is waiting for you in the mail drop. To view the data in the maildrop, you have to invoke the "Maildrop Check" function of the PK-232.

To activate Maildrop Check, click and hold on "Control" in the menu bar. Drag the pointer down to "Check Maildrop", then release the mouse button. The "Maildrop" window appears, displaying messages in the PK-232.



Maildrop window

QuickRead

QuickRead allows you to perform PakMail (maildrop) functions with the click of a mouse button. To Read, Kill or Edit a message appearing in the maildrop window, position the mouse cursor over the desired message, then press and hold the mouse button. A menu will appear with the three command selections, which are invoked by dragging the highlight bar down to the desired selection and releasing the mouse button.

Please see the data controller manual for more details on the Kill, Read and Edit command functions.

Sending a Message

The "Send" option allows you to place data into the PK-232 maildrop. When you are asked for a call sign, type in the call sign of the station that you are leaving the message for. You will then be presented with the "Send data to Channel 0" window, and you will notice that the box labeled "Send" has been replaced by a box labeled "Done".

Any data you type now will become a part of the message you are to leave in the PK-232. **Do not** place a Control-Z at the end of this message. Instead, press the Enter key when you are finished typing. Pressing Enter (not Return) will take the data out of the "Send data to Channel 0" and place it in the PK-232.

Now position the pointer over the box labeled "Done" and click twice. The first click will return you to the "Maildrop" window, the second click will update the "Maildrop" window to reflect the message just completed.

Exit Maildrop

Once finished with the "Maildrop", position the pointer over the word "Control", press and hold the mouse button. Drag the highlighted bar down to the words "Check Maildrop" and release.

Operation with MultiFinder and System 7.0

You can use MacRATT with MultiFinder or System 7.0 to keep an eye on packet while using other programs. If you use MultiFinder, you need to consider your memory usage and what the data controller should do while other programs are active. With System 7.0, however, you do not need to worry about memory usage.

MacRATT's minimum memory requirement will let it make the Receive, the Send Log, and a connection window with relatively small buffers. If you tell MultiFinder to give MacRATT more memory than its minimum requirement, MacRATT will make larger buffers for the initial windows.

When MacRATT has less than 512K of RAM to use, it is possible that the memory will become too full. If the Status window shows less than 10K available, you should immediately close some desk accessories or remove some connection windows.

If you have selected "Have TNC hold data while MacRATT is suspended" in the TNC settings box, MacRATT will send an XOFF character to the data controller when another program becomes active. This setting should be off if you use System 7.0 or MultiFinder.

Background Operation

MacRATT will run in the background if you are using MultiFinder and another program is active. If you expect MacRATT to run in the background, you might want to move the Unread Text window to a position where it will not be covered by other windows. The Unread Text window will show you which windows have new text for you to read.

Also, if MacRATT encounters an error while it is running in the background, it will beep three times, put "ERROR" in the unread text window, and try to continue running. Hypercard disables beeps from background programs so you will not receive any audible alerts from MacRATT when you are using Hypercard.

With MacRATT version 2.1, when a mouse click is used under MultiFinder to switch from an application to MacRATT, MacRATT now ignores that click.

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Generating Special Characters

There are many characters that can be sent or received that do not usually appear on a terminal's screen. MacRATT can display most of these characters. This section describes how these special characters are displayed and how they can be sent.

There are some characters known as "control characters". These characters are often used to perform control functions. Data controllers and bulletin board stations usually attach a special meaning to some control characters.

Use the Control or Option key to generate these characters. Holding the Control or Option key down while pressing a letter key will generate the corresponding control character. For instance, Control-S or Option-S will generate a CONTROL-S.

The characters [, \], ^, and _ also have control character equivalents. CONTROL-[is also known as the ESCAPE character. The DELETE character can be made with Option-Backspace.

Many Mac keyboards do not have a Control key. The Control key is not the same as the Command key. The lack of a Control key is not a problem because you can also use the Option key to make a control character. With Macs other than the 512E and the Plus, the combinations Option-E, Option-I, Option-N, Option-O, Option-U, and Control-^ will not work.

Each control character and DELETE can be marked as "immediate" in the Immediate Characters settings box accessed via the Send settings box. When you are not sending automatically (see the Entering and Sending Text section) and you enter a control character that is immediate, the character is sent to the output queue when you press the key. If a character is not immediate, it will be put in the Send window when you press the key. See the Output Queue section for details.

Displaying Special Characters

The NULL character is never displayed, but it can be put in files (see the Files section). You have the option of displaying and saving all other special characters. Control characters are displayed as the corresponding normal character with a bar over it. For example, CONTROL-A is displayed as a lower case "a" with a bar over it. The ESCAPE character, CONTROL-[, is treated specially and is displayed as small letters ES. CONTROL-G, the bell character, causes the Mac to beep. When you send this a lower case "g" with a bar over it will be put in the Send or Send Log window. When you receive a CONTROL-G, nothing appears on the screen.

There are 128 additional characters that are not normally used and do not have standard designations. MacRATT displays these characters as numbers in the range 128-255 shown on their sides. MacRATT cannot generate characters in this range.

You can choose which special characters are displayed. Click and hold "Settings", drag down to "Monitor Window" or "Connection Windows", and release. Then click on "Set Ignored Characters".

Summary of Menu Commands

File Menu

Details on most of the menu commands can be found in other sections of the manual.

Send File: If no file is being sent, MacRATT sends the selected file to the send data stream. If a file is already being sent (indicated by a check mark next to the "Option Select" file), then Send File stops the transmission of the file.

Save Stream: Turns on and off saving the stream of characters associated with the front window to a disk file.

Save Selection: Puts the text that is selected in the front window into a file.

Print Stream: Similar to Save Stream but prints the text instead of saving it to a file.

Print Selection: Prints the text that is selected in the front window.

Redirect Text to Printer: Turns on and off sending text that would be put in the Receive window to the printer instead.

Page Setup: Adjusts the parameters MacRATT uses for printing.

Quit: Executes any quitting actions and then quits.

Edit Menu

Undo: This is not used by MacRATT, but is available for desk accessories to use.

Cut: Removes the current selection and puts it on the Clipboard.

Copy: Copies the selection in the front window to the Clipboard.

Paste: Inserts the text on the Clipboard at the point where a typed character would go.

Clear: Removes the selected text.

Copy-Paste: Copies the selected text in the front window to the Clipboard and inserts a copy where a typed character would go.

Select All: Selects all of the text in the front window.

Clear All: Removes all of the text in the front window.

Edit Macros : Allows user to add or change macros. This can also be used to send the text in a macro. Macros are described in the Chapter 12, Macros and also in the Entering and Sending Text section.

Show Clipboard: Makes the Clipboard window visible and brings it to the front.

Control Menu

Send Text: Sends text that has been entered but not sent to the data controller.

Command Mode: Presents a list of commands that you can execute.

Send Text Automatically: Turns automatic sending on and off.

Set Send Destination: Asks you to choose which of the data controller's streams will receive the text in the Send window.

Hold Input: Stops or resumes displaying characters the data controller sends to the Mac. See the Windows section for details.

Kill Pending Output: Removes all text and files from the list of things waiting to be sent. See the Output Queue section for details.

Set TNC Clock: Sends a command of the form "DAY YYM-MDDHHMM" to the data controller where "YYM-MDDHHMM" is the year, month, day, hour, minute, and second given by the Macintosh's clock.

Send Break: Sends a serial break signal to the data controller.

Create Connection Window: Makes a new connection window.

Remove Connection Window: Discards a connection window's buffer and removes the window.

Check Maildrop: When using the PK-232 or PK-88, this logs on to the maildrop to enable you to use its functions.

Show Maildrop Window: Brings the maildrop window to the front.

Windows Menu

Send Window to Back: Moves the front window so it is behind all of the other windows.

Close Window: Hides the front window.

Show Send Window: Brings the Send window to the front.

Show Monitor Window: Brings the Monitor window to the front. The name of this menu item may be different if host mode is off.

Show Status: Makes the current status window visible and brings it to the front.

Momentarily Show Status: Makes the current status window visible and brings it to the front. About 3 seconds later the window will be hidden.

Show Send Log: Makes the Send Log window visible and brings it to the front.

Show Unread Text Window: Makes the Unread Text window visible and brings it to the front.

Connection (number): Brings the specified Connection window to the front.

Settings Menu

Save: Saves the current settings under the current Saved Configuration Group name.

Save As: Saves the current settings in a new Saved Configuration Group.

Delete: Removes the current group from the settings file.

Set Startup: Selects the current Saved Configuration Group as the group MacRATT should use when it starts.

TNC: Sets parameters related to the data controller.

Send . . .: Sets parameters related to sending the contents of the Send window.

Send Automatically . . .: Sets parameters that control how text is sent automatically.

Monitor Window: Sets parameters related to displaying text in the Monitor window. See the Windows section for details. The name of this item may be different if host mode is off.

Connection Window: Similar to Receive Window except this sets parameters related to displaying text in connection windows.

Host Mode Parameters: Sets parameters related to host mode.

Files: Sets parameters related to saving text in files.

Note Window Locations: Records the locations, sizes, and appearance (visible or hidden) of the windows. If this information is saved then you can use the same window configuration in future MacRATT sessions.

Starting and Quitting Actions: Sets the actions MacRATT should perform when it starts and quits.

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Appendix A

MacRATT Cable Wiring Diagram

MacRATT Pin

PK-232 Pin

1.....20

2.....8

3.....2

4.....7

5.....3

6.....n/c

7.....n/c

8.....n/c

n/c = no connection

Appendix A

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AEA MacRATT™ with FAX

PK-232, PK-88 and PK-87 Terminal Program for use with the Macintosh

- Windows for entering text, displaying the receive buffer, and logging transmitted text. All windows employ features unique to the Mac, such as scrolling and copying to the clipboard.
- Window display of the status of file transfers and the link between the PK-232, PK-88 or PK-87 and the Mac.
- On-screen display of FAX.
- MacRATT™ runs the PK-232 in host-mode for fast, efficient operation and will run under Multifinder.
- Text uploading, downloading, and printing are easy. Twenty macro keys can be used to speed text entry.
- Sends RTTY, AMTOR, and Morse one-character at a time.
- Compatible with the Macintosh 512e, PLUS, SE, and Mac II.
- Serial cable is included (512e requires adaptor).

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