
OptermX

Terminal Emulator

User Guide

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Foreword

This guide provides some brief instructions on how to configure, set up, and run the OptermX Terminal Program.

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Introducing OptermX

If you have used the original **Outpost Packet Message Manager**, you may be familiar with its three terminal emulator programs: **Ipserial.exe**, **Ipagwpe.exe**, and **Optelnet.exe**. With the introduction of OutpostPMX, the functions of these three programs have been combined into a single application: **OptermX**.

OptermX provides an interactive terminal for communicating with packet-radio equipment and systems using three types of connections:

- **Serial** — connects directly to a TNC through a serial or USB serial port.
- **AGWPE** — connects through an AGW Packet Engine-compatible interface, such as AGWPE or Dire Wolf.
- **Telnet** — connects to a remote system over a TCP/IP network.

What is a Terminal Emulator?

A terminal emulator is a software program that lets your computer behave like a traditional text terminal.

Before personal computers became commonplace, users often interacted with computers through physical terminals consisting of a keyboard and either a teletype printer or a text display. A terminal emulator provides that same basic interaction in a window on a modern computer.

With OptermX, you type commands and text into the Terminal Window. OptermX sends them through the selected interface to a TNC or remote system. Characters received from that device or system are displayed in the Terminal Window, allowing you to interact with it directly.

For example, using OptermX you can communicate directly with a TNC to change or inspect its settings, manually connect to a packet station or BBS, troubleshoot a packet-radio connection, or observe how a remote system responds to commands.

Unlike **OutpostX**, which automates much of the process of sending and receiving packet messages, **OptermX gives you direct, manual control of the connection**. This makes it particularly useful for configuration, testing, troubleshooting, hobby fun, and situations where you simply want to operate a packet connection manually.

Getting Started

When you install OutpostPMX, you automatically get two programs: OutpostX and OptermX. These are usually installed in a directory that you define, such as C:\MyPrograms (for Windows) or ~\MyPrograms (for Linux or macOS)

When installed, your directory should look like this:

Windows

```
C:\MyPrograms
  outpostpmx\
    _internal\
      outpostx.exe
      optermx.exe
```

Run OptermX:

1. From File Manager
 - a. Open File Manager
 - b. Double-click on the optermx.exe file.
2. From Command prompt
 - a. Navigate to the program directory with the 'cd' command
 - b. Type in the full name of the program to run
3. From OutpostX
 - a. Start OutpostX
 - b. Once OutpostX opens, select **Tools > Terminal Emulator**

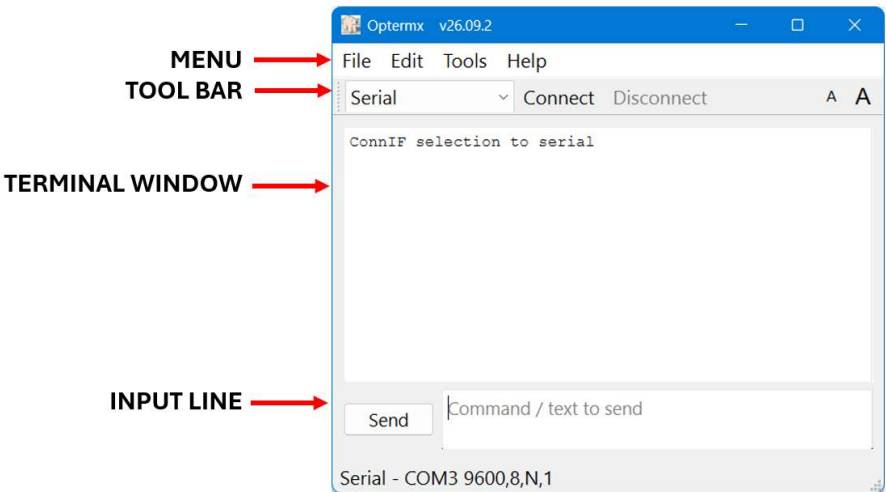
Linux, MacOS

```
~\MyPrograms
  outpostpmx\
    _internal\
      outpostx
      optermx
```

Run OptermX:

1. File Manager
 - a. Open File Manager
 - b. Double-click on the optermx file.
2. Command prompt
 - a. Navigate to the program directory with the 'cd' command
 - b. Enter the run command:
./outpostx or ./optermx
3. From OutpostX
 - a. Start OutpostX
 - b. Once OutpostX opens, select **Tools > Terminal Emulator**

Main Window



Menu Bar

File	Load Command File. Lets you pick a text file containing TNC or BBS commands. This command opens a file menu for you to navigate to a desired file. Once you select it, press Open. The file contents are pasted into the Input Line for your review. Exit (ESC) Closes the program. ESC also closes the program. Most Recent Configuration Lists the last 8 interface configurations. Once listed, you can then click on any one to load that configuration, then press Connect.
Edit	Cut ctrl-X Copies and removes any highlighted text in any field. The text is placed in the MS-Windows clipboard. Copy ctrl-Shift-C Copies any highlighted text in any field. The text is placed in the MS-Windows clipboard. Paste ctrl-V Places any text from the clipboard into the Input Line field. Select All Selects all text in the Terminal Window. Clear Screen Deletes the contents in the Terminal Window. Preferences Where the different interfaces are configured. See the following sections for details.
Tools	Connect. Connect to an interface. For serial connections, press enter to confirm you receive the tnc prompt. Disconnect. Disconnects from the interface. Character Mode ctrl-H Changes the Input Line between Command Mode and Character Mode. In Command Mode you can type individual or a collection of commands where an ENTER (CR) causes the Input Line field content to be sent to the interface. In Character Mode, every keystroke is immediately sent to the interface.

	This is mainly used for special TNC features such as KPC3 'CAL' and breaking out of AUTOBAUD. NOTE: Backspace is not supported with this mode. Repeatedly pressing this menu item (or ctrl-H) toggles between Command Mode and Character Mode. Open Data Folder Causes the O/S-specific file manager application to open to the OutpostPMX data directory. The subdirectory of interest will be the logs subdirectory. Here you will find the <code>optermx<yymmdd>.log</code> file that can help with troubleshooting a connection. Hot Key Profiles Allows the user to define a series of command strings that can be sent by pressing one of the keyboard function keys F1 thru F8. Different named profiles can be defined, saved, and retrieved. Serial Command Mode. Send Ctrl-C ('0x03' ETX) to the serial port to reset from Unproto Mode to Command Mode. Kiss Off ... KPC3... Forces Kantronics and PacComm TNCs from KISS or Host mode back into Command Mode, sequence is 192 255 192 AEA... Forces an AEA TNC from KISS or Host mode back into Command Mode. Sequence is "CR CR CR" Color Theme ctrl-T Toggles the Terminal Window between Black Text on White background, and White Text on Black Background. Font. Opens a Font Dialog Box to set the font, style, and size. Increase Font Size. Increase the font size of the Terminal Window and Input Line by one size. Decrease Font Size. Decrease the font size of the Terminal Window and Input Line by one size.
Help	About. Displays some basic information about the OptermX program.

Setting Up an Interface

Before You Begin

You will need a couple of things:

1. A usable packet station. This includes:
 - a. PC (Windows, Linux, macOS) running the OutpostPMX software.
 - b. A Terminal Node Controller and configuration, such as:
`COM3,9600,8,N,1`
`COM5,9600,7,E,1`
`/dev/ttyUSB1,9600,8,N,1`
or the details to connect to a telnet station: Host Name and Port.
 - c. Radio and the frequency for the BBS to which you intend to connect.

Serial / TNC Interface

From the OptermX main menu, do the following:

1. Select the menu **Edit > Preferences...**, then the **Serial** tab.

2. **Name:** Optional, name to assign this IF
3. **Com port** dropdown will provide a list of known com ports currently recognized by your PC's operating system.

4. **Baud Rate** dropdown lists the standard bauds.

110	9600-DEFAULT	56000
300	14400	57600
600	19200	115200
1200	22800	128000
2400	38400	256000
4800		

5. **Data Bits.** Dropdown lists the common data bit settings, includes **4, 5, 6, 7, 8**
Default: 8 bits

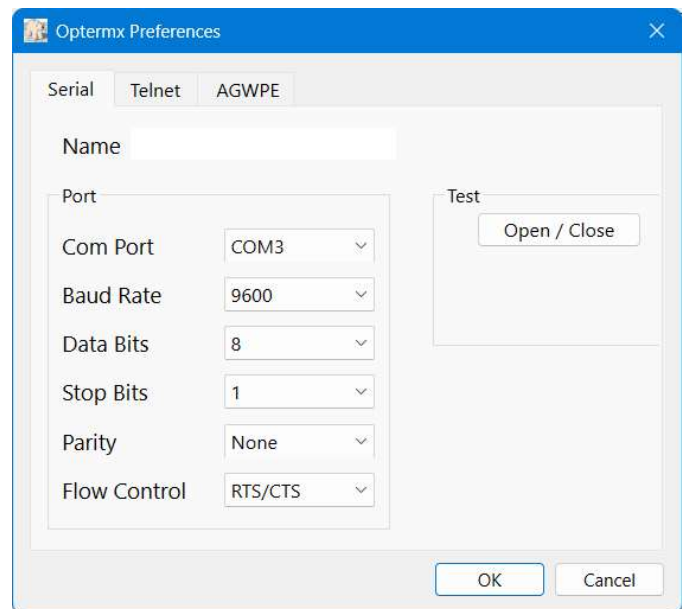
6. **Stop Bits.** Dropdown list of common stop bit settings, includes **1, 1.5, 2**
Default: 1

7. **Parity.** Dropdown list of common parity settings, includes **None, Odd, Even, Mark, and Space.**
Default: None

8. **Flow Control.** Dropdown list. See notes after this table.
Default: None

9. **Test > Open/Close** — **Deprecated.** This function is not currently supported and will be removed in a future release. Use Connect from the main OptermX window to open and test the configured serial connection.

10. When done, press **OK**.



Notes on Flow Control

Because the TNC buffer is relatively small, flow control is primarily implemented for sending data from OutpostPMX programs to the TNC. There are three settings in the dropdown, two of which are currently implemented.

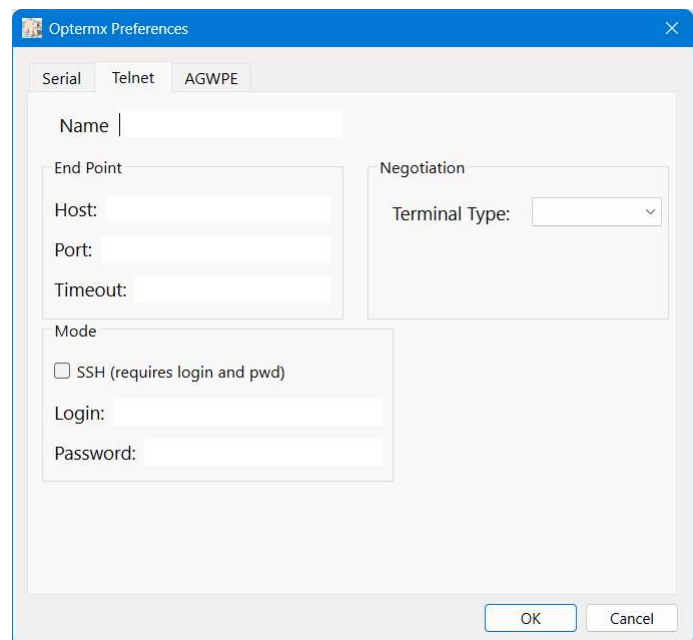
- **None**, IMPLEMENTED. Data is sent continuously without any handshaking signals.
- **RTS/CTS**, IMPLEMENTED. Hardware Flow Control, uses dedicated hardware pins (**Request to Send** and **Clear to Send**). One device sets its line high or low to tell the other device when it is ready to receive data.
- **XON/XOFF**, PENDING IMPLEMENTATION. Uses special control characters sent directly through the standard data stream rather than separate wires. **XOFF** (Transmit Off, ASCII DC3) tells the sender to pause, and **XON** (Transmit On, ASCII DC1) tells the sender to resume.

NOTE: Until XON/XOFF is implemented, selecting this Flow Control method is the same as setting Flow Control to NONE.

Telnet Interface

From the OptermX main menu, do the following:

1. Select the menu **Edit > Preferences...**, then the **Telnet** tab.
2. **Name:** Optional, name to assign this IF
3. **Host:** the exact destination network address, either IP address or Domain Name
Default: <blank>
4. **Port:** the specific numerical channel on the host that is assigned to a particular application.
Default: <blank>
5. **Timeout.** How long to wait for the connection before giving up, in milliseconds.
Default: 5000



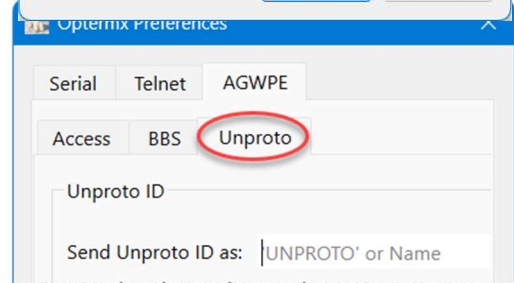
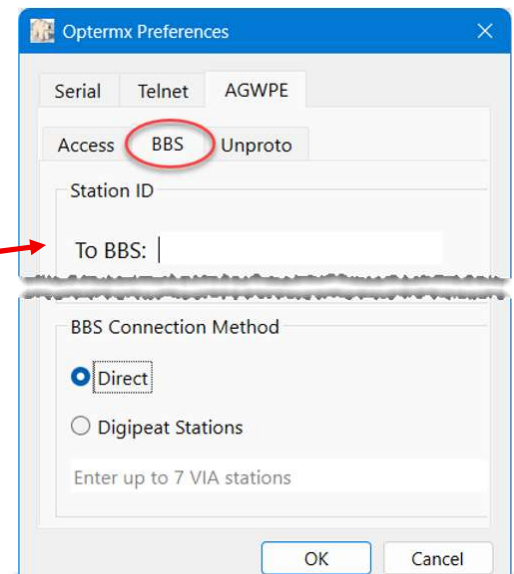
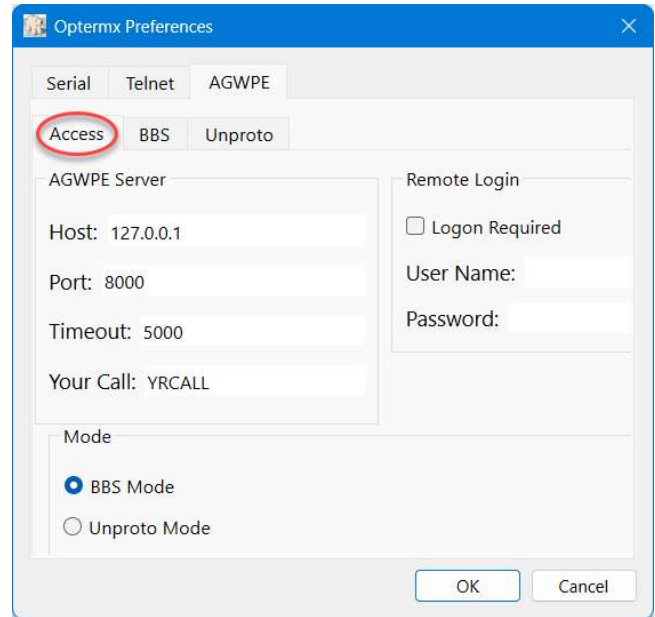
Mode

6. **SSH, Login, Password** — **Deprecated**. These settings are not currently supported by the OptermX Telnet interface and will be removed in a future release.
7. **Terminal Type** — **Deprecated**. This setting is not used by the current OptermX Telnet connection and will be removed in a future release.
8. When done, press **OK**.

AGWPE Interface

From the OptermX main menu, do the following:

1. Select the menu **Edit > Preferences...**, the **AGWPE**, then the **Access** tab.
2. **Host:** The IP Address or host name of the PC where AGWPE is running. A setting of 127.0.0.1 assumes it is on the same PC as OutpostPMX.
Default: 127.0.0.1
3. **Port:** This setting must match what is set up in the AGWPE Winsock Interface form.
Default: 8000
4. **Timeout.** How long to wait for the connection before giving up, in milliseconds.
Default: 5000
5. **Login Required.** Check this box if a Login is required.
6. **User Name.** If the above box is checked, then enter the login name here; it must match the name set in AGWPE.
Default: <blank>
7. **Password.** If the above box is checked, then enter the password here; it must match the password set in AGWPE.
Default: <blank>
8. **BBS Mode.** Check this item if you intend to connect to a BBS. Then, select the **BBS** tab.
 - **To BBS:** Enter the BBS connect call to which you are going.
 - **Direct:** Select if going direct to the BBS
Digipeat Stations: Select if going by digipeat stations to the BBS
9. **Unproto Mode.** Check this item if you intend to send or monitor unconnected AX.25 (Unproto) packets.
 - **Unproto ID:** a placeholder (generic destination) for Unproto Packets; satisfies AX.25 frame header requirements.
Suggestions: first name, UNPROTO, CQ, ID, or other.
10. When done, press **OK**.



Using the Terminal

Entering commands

With an interface configured, Press **Connect**. If all is working correctly, you should see a connect message in the Terminal Window area:

```
ConnIF selection to serial
>>> Serial Connect on COM3 at 9600 baud
```

Power on the TNC. Depending on the TNC and its current state, you may see its startup or welcome message in the Terminal Window. To confirm communication with the TNC, leave the Input Line blank and press the Enter key or Send button. You should receive the TNC's cmd: prompt.

```
ConnIF selection to serial
>>> Serial Connect on COM3 at 9600 baud

cmd:
```

Sending a Command

First, with your mouse, click on the Input area (bottom box). This puts your cursor in the box. This is normally where all commands will be entered. There are two ways to send data to the selected Device. This example assumes a serial device is configured:

1. Press the **Send** button. This will transmit any command or lines of text found in the input box to the TNC.
2. With nothing in the Input Line, press the **Enter** key. This is likely the most familiar way to transmit data to the TNC: type a command, press Enter to send it.

Receiving data

All data from the TNC will be displayed on the Terminal Window. When a command is sent, it will also be displayed followed by the device's reply.

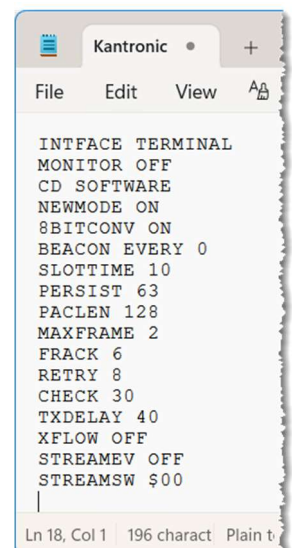
As data is received, it fills the display from top to bottom. You can use the scroll control on the right side of the form to scroll up and down through the listing.

For instance, type the command "MON ON" (turns monitor on) and press Enter. If you are on a busy channel, you might see a lot of traffic that your station heard. As data is received, you can scroll up and down the Terminal Window to check back or review something you saw earlier.

Sending a command file

Suppose you create a file that contains a series of TNC initialization commands that you want to set on your TNC.

1. Make sure the file is created.
2. From OptermX, **File > Load Command File...**
3. Navigate to the directory and select the file. The file is loaded into the Input Line. You can view the contents and make any final changes before you actually send it.
4. When done, press **SEND**. The entire contents is sent to the TNC. The TNC will then reply with the results of each command. Use the right-hand scroll control to see the results. Here's what I see after sending this command file:



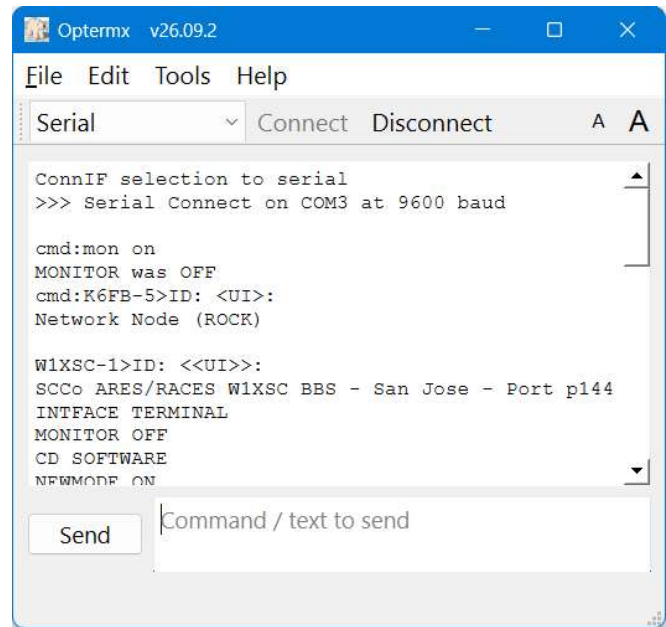
```
INTERFACE TERMINAL
MONITOR OFF
CD SOFTWARE
NEWMODE ON
8BITCONV ON
BEACON EVERY 0
SLOTTIME 10
PERSIST 63
PACLEN 128
MAXFRAME 2
FRACK 6
RETRY 8
CHECK 30
TXDELAY 40
XFLOW OFF
STREAMEV OFF
STREAMSW $00
|
```

Ln 18, Col 1 196 charact Plain t

Copy & Paste commands

Another way to send commands is to copy from another source and paste them into the Input Line.

Instead of sending the command file from the above example, I could open the file, copy the lines, and paste it into the Input Line. Then press SEND to transmit the list.



Connecting to a Packet Station

How does this all work? Here is an example of the sequence of events to make a BBS connection with OptermX. In this example, I will use the K6FB PBBS.

1. Configure or select OptermX for an interface. For this example, we will use a Serial port on Com 3.	See the previous section.
2. Press Connect to connect to the Serial port. Press the Enter key to confirm you can get to the TNC.	ConnIF selection to serial >>> Serial Connect on COM3 at 9600 baud cmd:
3. Click on the text input box at the bottom. 4. At the TNC prompt, enter these commands. a. Turn monitoring on b. Set your call sign c. BBS connect cmd	cmd:mon on MONITOR was OFF cmd:my kn6pe cmd:c k6fb-1 cmd:*** CONNECTED to K6FB-1 [KPC3P-9.1-HM\$] 394112 BYTES AVAILABLE IN 21 BLOCK(S) THERE ARE 7 MESSAGES NUMBERED 3-227 Welcome to the K6FB mailbox. Admin is Skip AA6WK. YOU HAVE 1 MESSAGE(S) WAITING ENTER COMMAND: B,J,K,L,R,S, or Help >
5. Note that you have one message waiting. Use the LM (List Mine) command to list it.	lm MSG# ST SIZE TO FROM DATE SUBJECT 226 PN 123 KN6PE K6KP 09/06/2026 15:35:10 DELIVERED: 6PE-104P Still ENTER COMMAND: B,J,K,L,R,S, or Help >
6. Next, read the message with the R (Read) command.	r 226 MSG#226 09/06/2026 15:35:10 FROM K6KP TO KN6PE SUBJECT: DELIVERED: 6PE-104P_R_Still testing PATH: K6FB Your message was delivered to: K6KP at 09/06/2026 15:36 K6KP assigned Msg ID: 6KP-105P ENTER COMMAND: B,J,K,L,R,S, or Help >
7. When done, delete the message with the K (kill) command.	k 226 MSG#226 09/06/2026 15:35:10 FROM K6KP TO KN6PE MESSAGE DELETED ENTER COMMAND: B,J,K,L,R,S, or Help >
8. Exit from the BBS with the BYE command.	bye *** DISCONNECTED cmd:KN6PE>K6FB-1: <<UA>>: cmd:

NOTES:

1. All commands sent to the TNC and BBS must be entered on the Input Line.
2. See your TNC Manual for the list of TNC commands available to you, or...
3. To see all commands, enter **INT TERM** to change from *New User* to *Terminal user*. Then, type **HELP** to see all the commands online.
4. Commands can be entered as either upper or lower case.

Character Mode

Introduction

Normally, OptermX operates in **Command Mode**: you type a command or line of text, maybe even edit it, and then press **Enter** or **Send** to transmit it. OptermX sends the complete text, including the terminating carriage return.

Character Mode is used when the connected device expects individual keystrokes rather than complete commands. When Character Mode is enabled, each printable character you type is transmitted **immediately**, without waiting for Enter and without adding a carriage return or line feed.

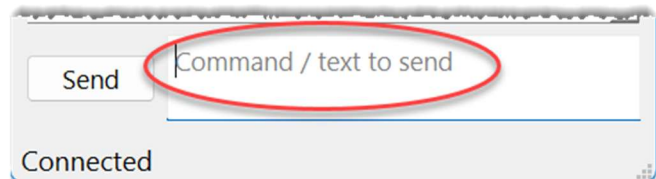
A common example is the **Transmit level adjustment (Calibrate) for a Kantronics TNC**. In Calibrate mode, single-character commands such as M, R, S, T, +, -, and X control various calibration functions.

After entering the “cal” command, switch to **Character Mode**. Then, as expected by the TNC, you can press the “M” or “S” to transmit a constant MARK or SPACE (signal) until another key is pressed. Pressing X will exit the calibrate mode and reset the KPC-3 Plus. Then you can switch back to **Command Mode**

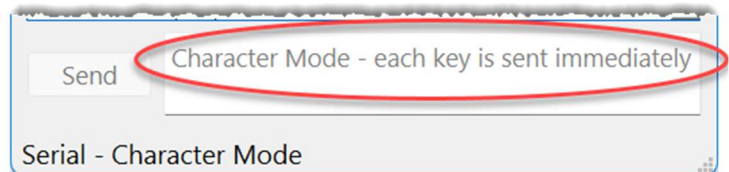
How it works

There are two modes of sending information to the TNC:

1. **Command Mode.** In this mode, you can type full commands or strings of text, then press <enter> or the **Send** button to transmit it to the TNC. You know you are in Command Mode because the Input Line ‘hint’ shows this:



2. **Character Mode.** This is a special mode where every character you press is immediately sent to the TNC. You know you are in Character Mode because the Input Line ‘hint’ shows this:



NOTES:

1. Character Mode is available for Serial connections only
2. Backspacing does not work in Character Mode. If you want to send full commands and need the ability to change them before you send them, then use Command Mode!

Hot Key Profiles

Introduction

Hot Keys provide a quick way to enter commands or other frequently used text without having to type the same information repeatedly. OptermX supports **F1 through F8**, giving you eight programmable Hot Keys. A set of Hot Keys can be named so that they can be retrieved and used repeatedly.

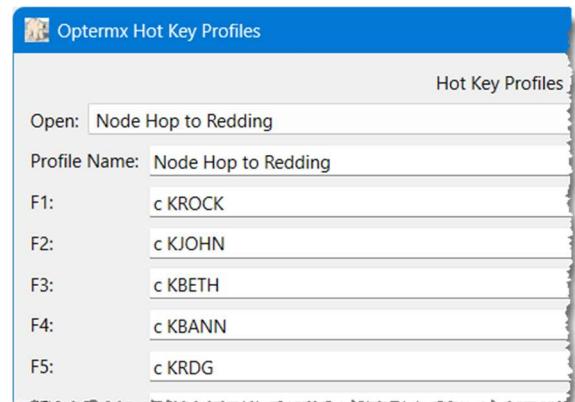
For example, when connecting to a packet BBS, you might repeatedly enter your call sign, password, connect command, or other commonly used commands. These can be assigned to Hot Keys so they are available with a single keystroke.

NOTE: When you press a configured Hot Key, OptermX places its assigned text into the **command-entry box**. The text is **not transmitted automatically**. You can review or edit it before pressing **Enter** or **Send**. This provides the convenience of a shortcut without immediately sending something you did not intend to transmit.

How it works

Creating a new Hot Key Profile

1. From the OptermX program, select **Tools > Hot Key Profiles**. The **Default Set** is automatically loaded.
2. Press **New**.
3. Enter a Profile Name.
4. Then fill in as many Function Key fields as desired with the text or command to be sent.
5. When done, press **Save**, then **Close**. Your Hot Keys are now loaded.



Opening an Existing Hot Key Profile

6. From the OptermX program, select **Tools > Hot Key Profiles**. The Hot Key Profile is automatically loaded.
7. From the Open dropdown, choose the Hot Key Profile that you want to load, then press **Close**. That set of Hot Keys are now loaded.

Why use Hot Keys?

They reduce repetitive typing, help avoid typing errors, and make frequently used commands and text readily available—while still giving you an opportunity to review the text before it is transmitted.

Troubleshooting Basics

OptermX will not connect to the TNC	Verify that the correct Serial Interface is selected and check the settings under Edit > Preferences > Serial. In particular, verify the serial port, baud rate, data bits, parity, stop bits, and flow control. OptermX lists serial ports currently detected by the operating system, so if the expected USB serial port does not appear, verify that the adapter is connected and recognized by the computer. Also make sure another program is not already using the TNC's serial port. Only one application can normally have a serial port open at a time.
OptermX connects to the TNC, but the TNC does not respond correctly	Check that the serial parameters match the TNC configuration. A connection to the COM/USB port only establishes communication with the serial device; it does not guarantee that the baud rate and other parameters are correct. OptermX supports configurable baud rate, data bits, stop bits, parity, and flow control. If the TNC may be in an unexpected operating mode, try returning it to Command Mode before entering commands.
Telnet connection fails	Verify the host name and port number under Edit > Preferences > Telnet. If a host name does not work, try resolving it from a command prompt: <pre>nslookup hostname</pre> If DNS resolution fails but you know the server's numeric IP address, temporarily try the IP address in OptermX. If the IP address works, the problem is probably DNS/name resolution rather than OptermX or the remote server. OptermX's Telnet connection is a raw TCP connection to the configured host and port.
AGWPE connection fails	Make sure AGWPE, Dire Wolf, or the compatible packet-engine application is running before connecting from OptermX. Also verify the configured AGWPE host and port. A typical local configuration uses 127.0.0.1 and port 8000.
Typing commands produces unexpected results	Check whether Tools > Character Mode is enabled. In Character Mode, each printable key is transmitted immediately without a carriage return or line feed. This is useful for functions such as the Kantronics CALIBRATE command, but it is normally turned off for regular command entry.

Where to Go Next

Congratulations!

You have successfully installed, configured, and used OptermX to manually interact with the packet radio world. As you become more familiar with OptermX, you may want to explore additional capabilities. The following documents provide more detailed information:

Troubleshooting

If OptermX does not connect or communicate as expected, start with the Troubleshooting Basics section in this guide. Session logs in the OutpostPMX data folder can provide additional information when diagnosing connection problems.

Installation Guide

If you need to reinstall OutpostPMX, move it to another computer, or upgrade it to a newer release.

Downloads / Release Notes

Describes new features, enhancements, and bug fixes for each release.

Explore Additional Features

As your operating needs grow, learn more about:

- Load Command File (File Menu)
- Most Recent Configurations (File Menu)
- Tools > Character Mode (Tools Menu)
- Tools > Hot Key Profiles (Tools Menu)

Join the Community

Join the Outpost users community to exchange ideas and ask questions.

Most of all...

Enjoy using OptermX and the OutpostPMX program suite, and thank you for helping keep Amateur Radio packet communications active and growing.

73,

Jim Oberhofer
KN6PE