

Adding messages to your programs will enhance your graphics and make displaying instructions, player names, etc., much easier than before. It is possible you will want to interface a keyboard to use with this feature, although it was designed primarily to allow simple message display in CHIP-8 programs without any hardware modifications.

In addition to the changes already incorporated into the Character Designer Program presented earlier, you should enter the following alterations to the Two-Page Display Program from the September '78 VIPER:

0211 0F This change allows any page to be the first (top half) on display. As presented in VIPER, the interrupt routine only allows even-numbered pages to begin the display. This modification will in no way affect program you may already have written, but it is necessary in order for the Space Wars Program (coming up next) to run on 4K VIP systems.

01F2 F8 00 B4 F8 1B A4 12 D4 This change provides the capability for resetting R4 for a return (D4) instruction after the Messenger is finished with a run. It can be left in place for use with other subroutines which use R4 as a program counter. The stack pointer here is incremented with the instruction at 01F8.

The program listing on the following pages is commented so you can follow the code and understand how the Messenger works. If you have purchased the tape with the program on it, you will still learn a lot from understanding the code, and will be able to see how to modify it if you want to do so.

SUMMARY

To use the Messenger, a character set must have been previously generated and stored in the format described. The CHIP-8 sequence: 6XKK, 6YKK, AMMM, 0244, DXYN must be employed to display the message.