

# MMDebug Quick Start Guide

MMDebug is a powerful and intuitive debugger designed for use with the PicoMite's MMBasic. It will help you to understand what your program is doing and what is needed to achieve correct operation of the program. It allows single stepping, break pointing on program location and variable value changes. It works with both the user's main program and saved libraries. It displays current (and recent) variable values in the Watch Window. It is 100% compatible with the PicoMite firmware. Your user program will execute the same on the base level PicoMite firmware as it does on the MMDebug version of the firmware with a 'D' suffix appended to the version number.

- 1) Load the appropriate PicoMite firmware with MMDebug embedded onto your processor. MMDebug versions of the PicoMite firmware can be identified by the 'D' suffix on the version number.
- 2) Connect a VT100 compatible terminal program and verify correct operation. Verify you can give commands to the PicoMite from the VT100 terminal program at the command prompt. **If you are using the VGA or HDMI versions of the PicoMite firmware, you must have a VT100 terminal connected and configured as the console to control the Debugger.**
  - a) Any VT100 compatible terminal program should work. MMDebug was mostly developed using TeraTerm-5 and MMCC (the companion program to MMEdit-5). Both are extensively tested and fully compatible with MMDebug.
  - b) TeraTerm-5 is fully configured and ready to use when it is installed on your computer. If you are using TeraTerm-5, you can skip to step 3.
  - c) If you are an MMEdit/MMCC user, you should update to version V5.3.4 or higher to use MMDebug. MMEdit V5.3.4 is properly configured to give accurate Mouse Click information to the debugger. If you have requirements to use an earlier version than V5.3.4 you will need to calibrate the MMCC Mouse Clicks to get acceptable accuracy. On Windows, you can quickly configure earlier MMCC version's Mouse Clicks by changing the "Click Y shift = 5" line in MMCC.inf to something like "Click Y shift = 15". On Windows, my MMCC.inf file is at: C:\Users\EDN\AppData\Local\MMEdit5\MMCC. Your MMCC.inf file should be at a similar place.

If you have problems with MMDebug thinking you clicked on a line above or below where you really clicked, there is a Mouse Click Position Report displayed on the bottom border line of MMDebug (in Red characters with Yellow background). With the MMDebug window active you can click on characters in the Upper Left area of your terminal screen and watch for what (X,Y) location MMCC thinks you clicked at. By adjusting the "Click Y shift=?" number up or down a little bit you can get it dialed in to your environment and have a pleasant experience. My laptops all work well with "Click Y shift=15" and that is a good initial value to use. MMCC does report the X Mouse Click location accurately with no configuration. It is only the Y coordinate that you will need to focus on getting correct.

- 3) Load your MMBasic programs, files and libraries onto the PicoMite.
- 4) There are two ways to activate MMDebug.
  - a) You can type >Run Ctrl-D at the command prompt. This will start your program and immediately hand over control to MMDebug at the first line of your program and/or library.
  - b) Alternatively, you can just run your program at the command prompt with >Run and wait until you need the debugger to examine your program's behavior. At any time when your program is executing you can activate MMDebug by typing a Ctrl-D.
  - c) When you activate MMDebug you should see the MMDebug window appear and take over the upper right hand corner of the VT100 screen. MMDebug will share the VT100 terminal screen with your program's output. It tries to leave room at the bottom for full lines of text output from your program. And it tries to leave enough context on the Left side of the screen so you know what your program is doing.
  - d) If you use a library that has been fully debugged, you will usually want to skip directly to the start of your program. That is accomplished by a Left Mouse Click on the red STEP-OUT button at the bottom of the MMDebug window. (You are literally Stepping Out of the library initiation code and you will land at the start of your program with the library initialized.)
- 5) Included in the .ZIP file with the releases is a 10-Minute MMDebug Tutorial. It uses an MMBasic program titled MMDebug\_Tutorial.bas to demonstrate various features of MMDebug. The program doesn't really accomplish much other than it provides an easy way to walk a person new to the debugger through many of the features of the firmware. Please consider loading the MMDebug\_Tutorial.bas program and going through the steps outlined in the MMDebug\_10\_minute\_tutorial.pdf. It will make you an expert in 10 minutes and give you the understanding needed to apply MMDebug to your environment.