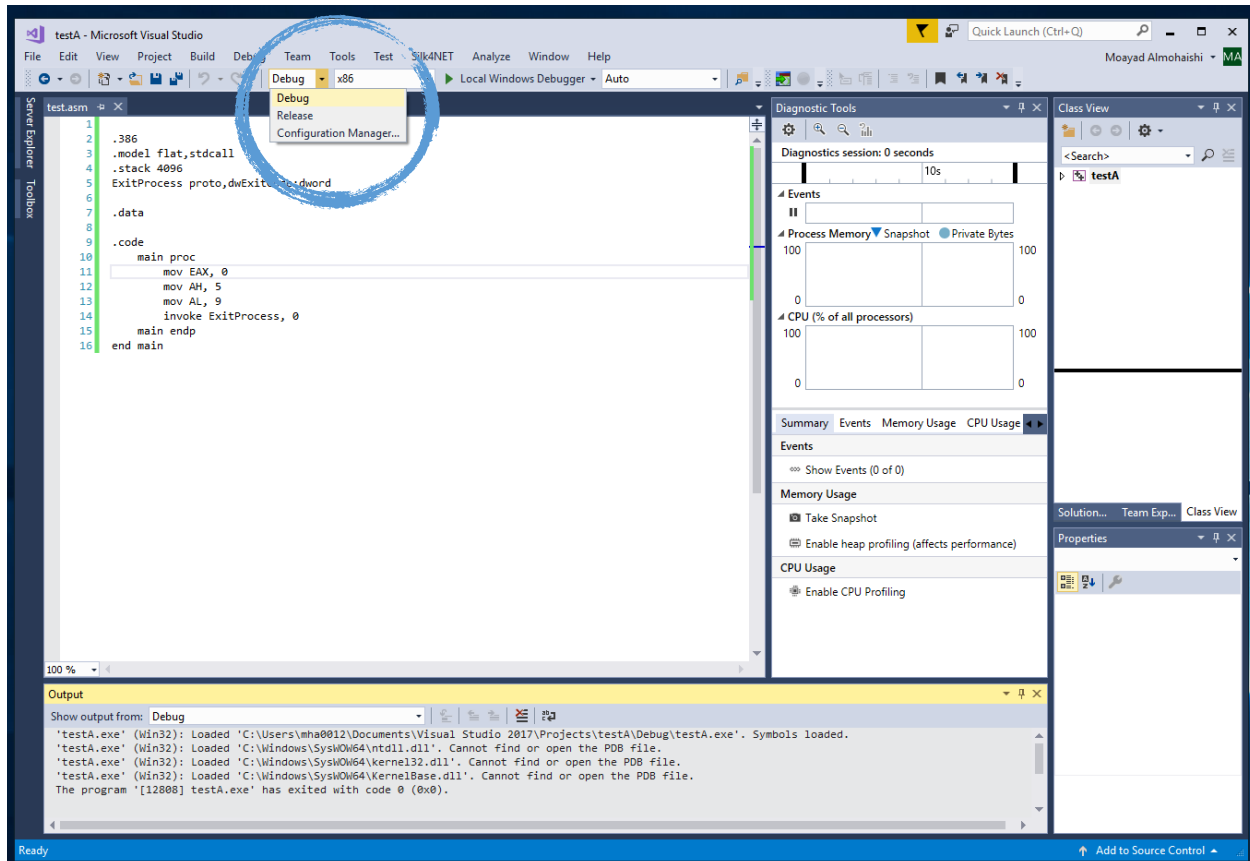


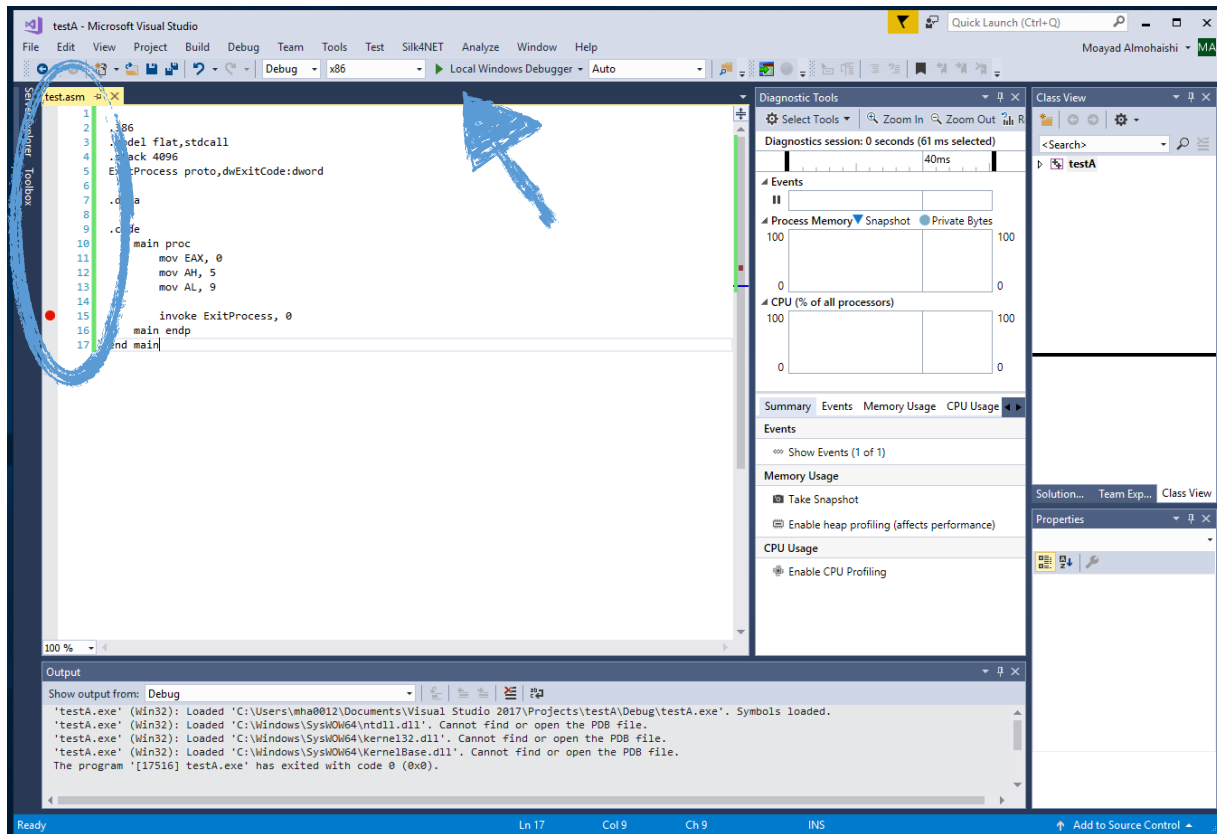
# Debugging MASM

## on Microsoft Visual Studio

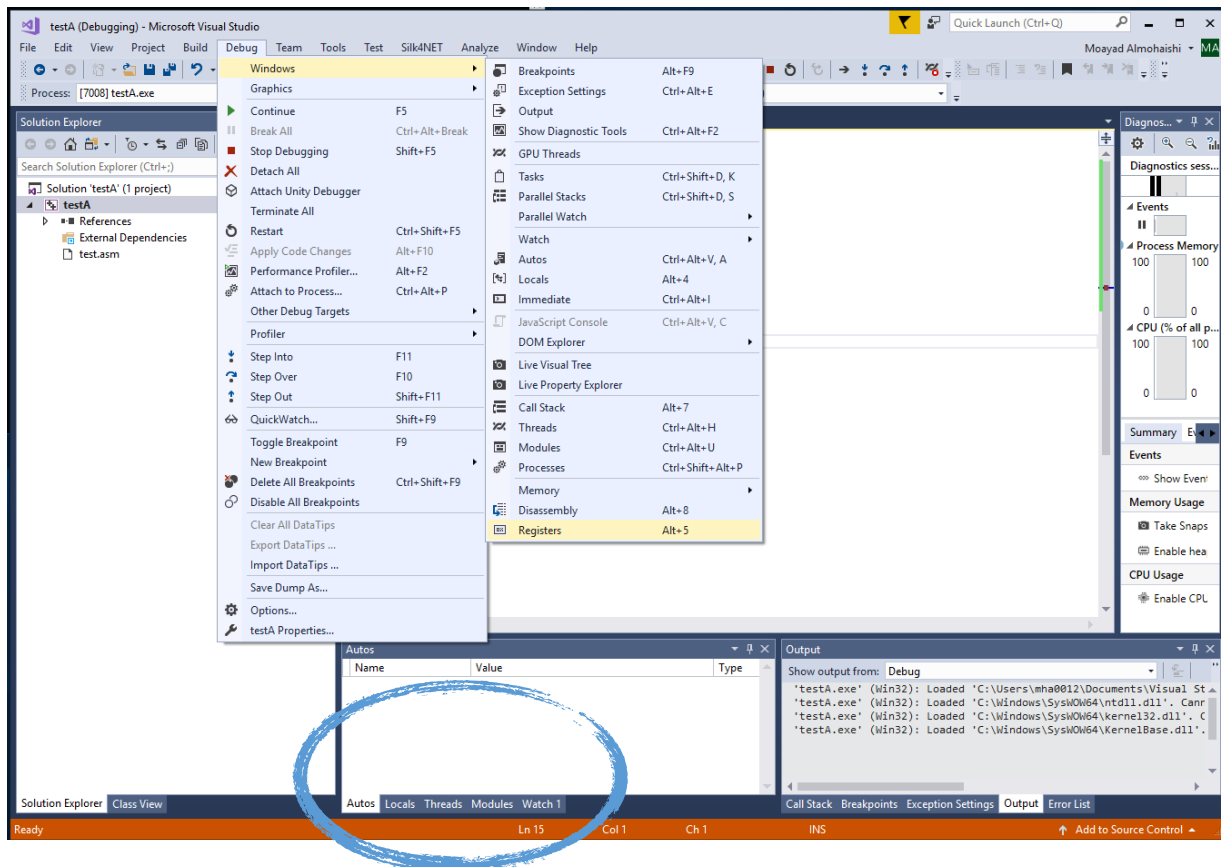
1. Make sure you are selecting debug from the run menu. Then run the program to make sure you don't have any error messages.



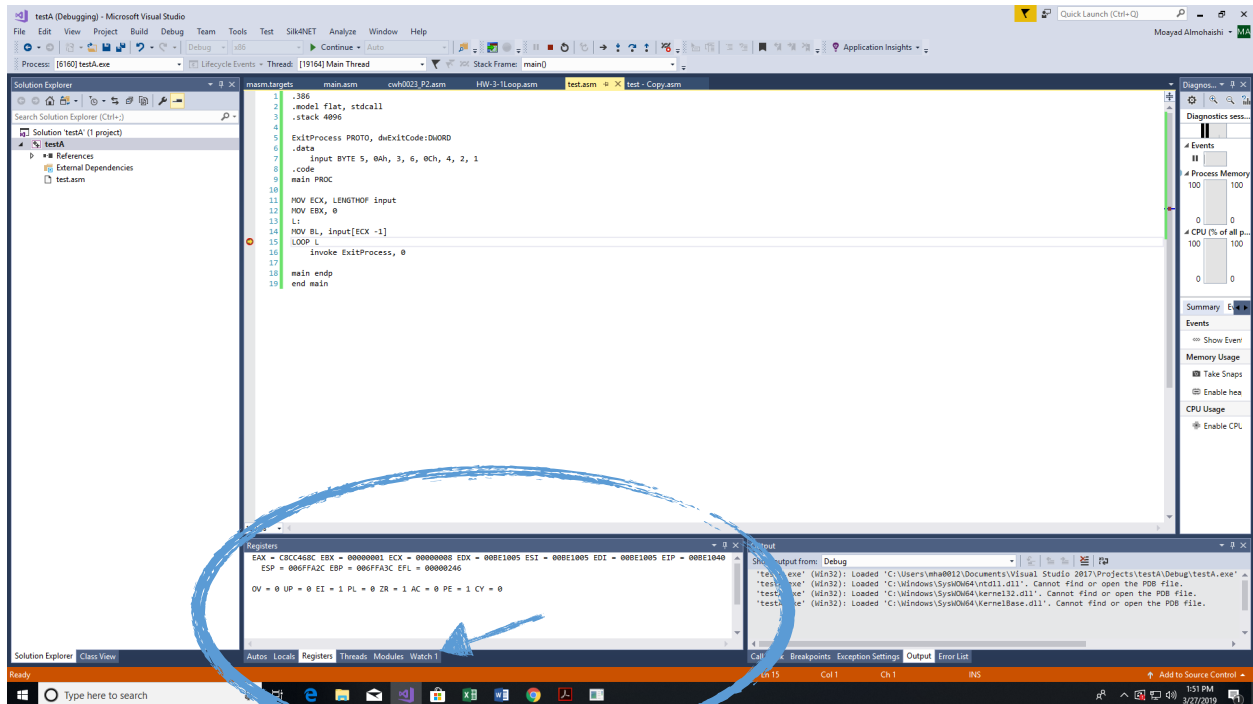
2. Click on the side bar next to the line you want to create your stop point at. Preferable make your stop point by the `exitProcess`. This will ensure you get your program final output before the program exit. Then click run.



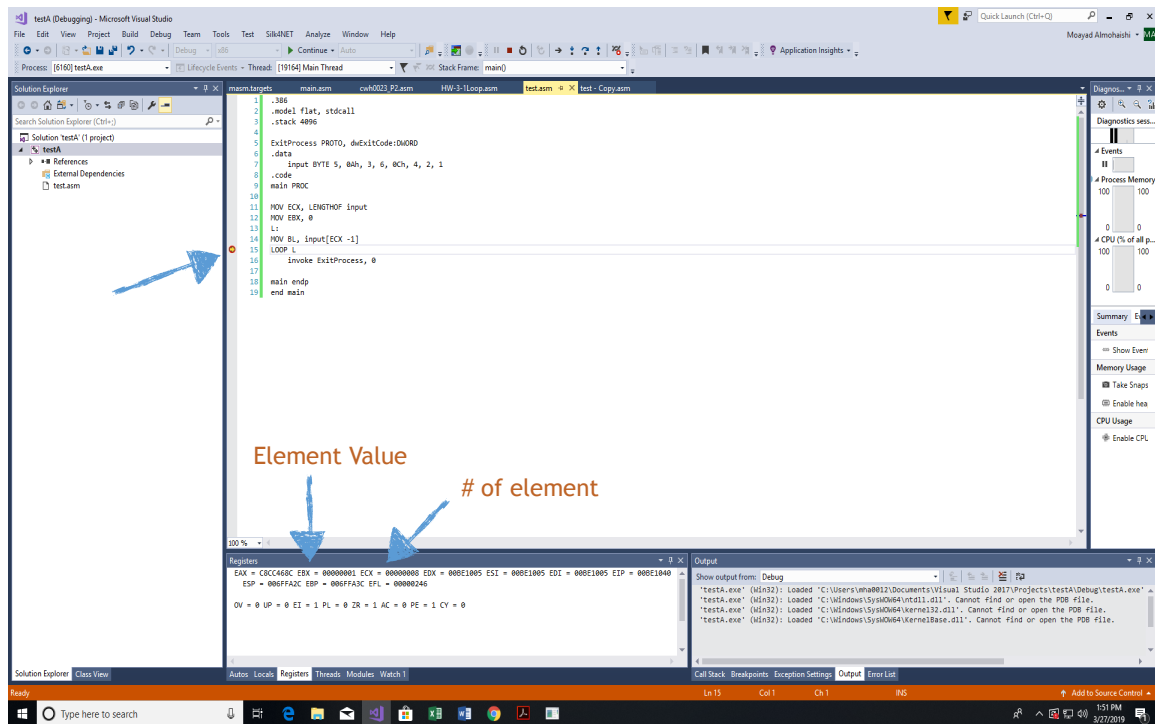
3. The program should stop by the stop point and stay in debug mode. Now if you don't see register tap in the bottom. You need to add the register window. 1. **Debug your code;** (2) from the menu bar chose Debug then Windows, then select Registers or click Alt+5.



- Now you can see the values of each register in the bottom window. Be aware the values are in Hexadecimal and not decimal. If you wish to see the value in decimal add the register or the variable to the watch. Know that it doesn't work with arrays and will only show the first value in the array.



5. If you need to debug array values or loops. Make the stop point by the loop line. In this case, I have ECX as the array index and AL as my array value. The program will stop at Each iteration of the loop and you can see the values on the register window. Click continue to move to the next iteration.



Note: if you have large array and want to validate your results, copy the first elements into EAX and the last elements in EBX. With byte array you can copy up to 4 elements in each register.