



Power Meter Monitor

**Business and Mission-  
Critical Solutions Provider**

## PMM06 Integration with Visual Studio

# User Manual



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**Document version:** 1.0  
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# 1. INTRODUCTION

This Document is a fully descriptive guideline for integrating PMM06 series with Visual Studio. Providing the operator with the needed information in terms of instructions and screen layout allowing

## 1.1 Description

PMM PLC Systems are built to be Arduino compatible programming environment, where PMM's PLCs Range is not just compatible with Arduino IDE, but with lots of other Arduino-compatible programming software such as visual studio.

Visual Studio is an integrated development environment (IDE) from Microsoft. It is used to develop computer programs, as well as websites, web apps, web services and mobile apps.

Visual Studio uses Microsoft software development platforms such as Windows API, Windows Forms, Windows Presentation Foundation, Windows Store and Microsoft Silverlight. It can produce both native code and managed code.

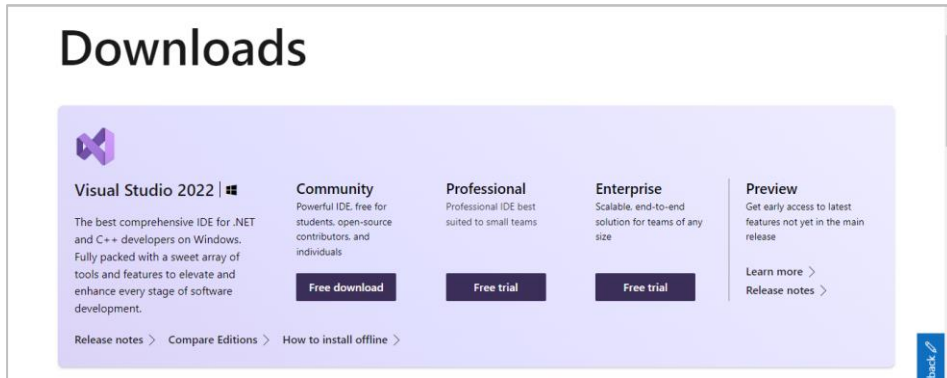
## 1.2 List of Compatible Devices

- PMM0612
- PMM0620
- PMM0625
- PMM0626
- PMM0627
- PMM0628
- PMM0630
- PMM0631
- PMM0632
- PMM0635
- PMM0636
- PMM0638
- PMM0639

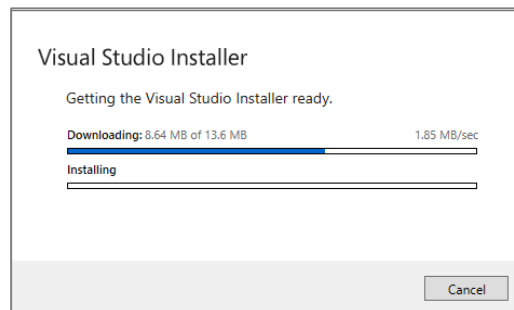
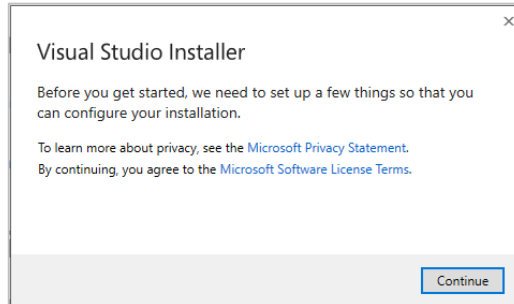
## 2. INTEGRATION GUIDELINES

### 2.1 Visual studio Installation Guidelines

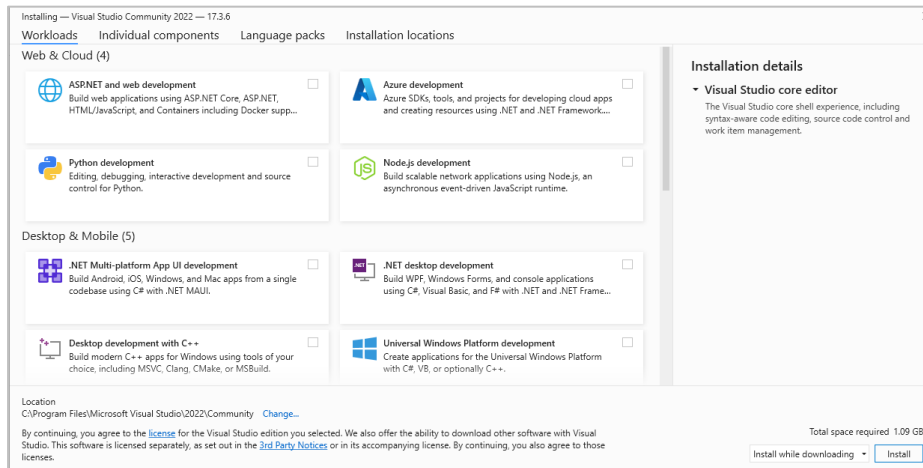
1. [Click Here](#) to get to the installation page.
2. Once the main page is opened, click on “professional”.



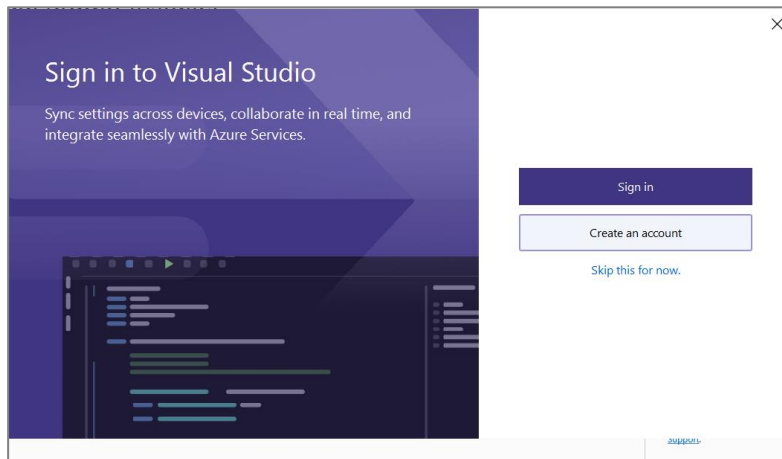
3. Click on “continue” to install the visual studio installer.



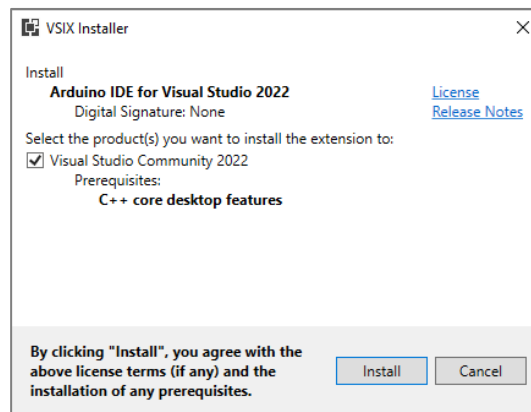
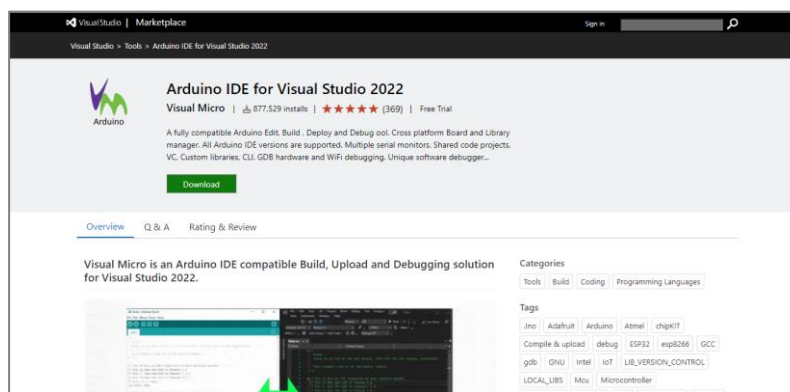
4. Visual studio installation process will start, click on “install” to continue after choosing the workloads you need.



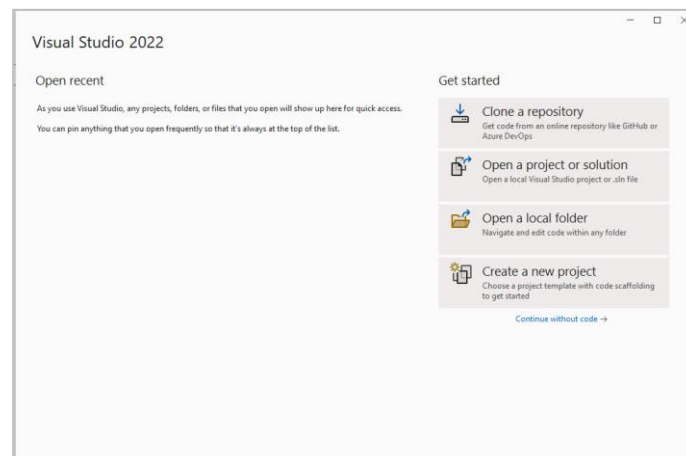
5. Sign in to your account if you have one or create a new account. You can choose to skip this step.



6. In order to work with Arduino you have to [Click here](#) to download Arduino IDE for visual studio.



7. Now everything is setup and the user can start with the device.



### 3. PMM0625 INTEGRATION with Visual Studio TUTORIAL

This section is full descriptive of the instructions related to connecting PMM0625 to Visual Studio. PMM0625-T is a reliable digital output module with 8 (80VDC) transistor isolated channels. The module sends digital signals from the CPU to the field actuators controlling their status between on/off. Each output can be individually switched on or off and can handle up to 5A. In addition, the opto-coupled architecture makes each output channel rather rugged, capable of isolating the CPU from transient voltage “spikes” and other electrical phenomena capable of causing damage. PMM0625-T is widely used in signal interface switching of PLC, single chip or other industrial control board.

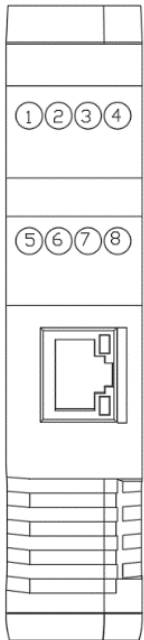


Moreover, PMM0625-T operates under three operational modes:

- **Modular operation mode:** the module is connected to a PLC by RS485 and implement specific function assigned by the PLC.
- **Fail Safe mode:** the module should be pre-programmed in case of lost connection with the PLC to carry on its function effectively.
- **Stand-alone:** the module can be programmed to work as PLC and control the field devices.

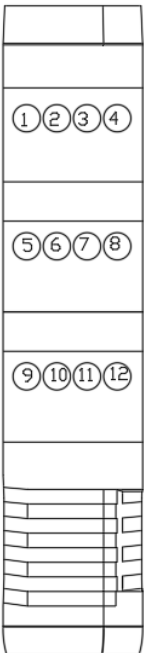
#### 3.1 PIN ASSIGNMENTS

TOP VIEW



- 1. D+ (RS485)
- 2. D- (RS485)
- 3. GND
- 4. Master command
- 5. V DC+ (9-56)
- 6. V DC- (9-56)
- 7. Earth
- 8. Earth

BOTTOM VIEW



- 1. Digital output 01
- 2. Digital output 02
- 3. Digital output 03
- 4. Digital output 04
- 5. Digital output 05
- 6. Digital output 06
- 7. Digital output 07
- 8. Digital output 08
- 9. VCC
- 10. COM1
- 11. VCC
- 12. COM 2

#### 3.2 HARDWARE CONNECTIONS

##### Connecting Power

PMM0625-T has two power supply options 10-60 VDC (10-48 VAC), the user has to connect the positive power line (+) to pin no.5 in the top view and the negative line (-) to pin no.6 as illustrated in the pin’s assignments.

**Note:** the power is protected against overvoltage and reverse polarity in case of wrong connection.

## Connecting Serial Device

The unit's serial port is located on the top panel. If you are connecting an RS485 multidrop network with multiple devices, note the following:

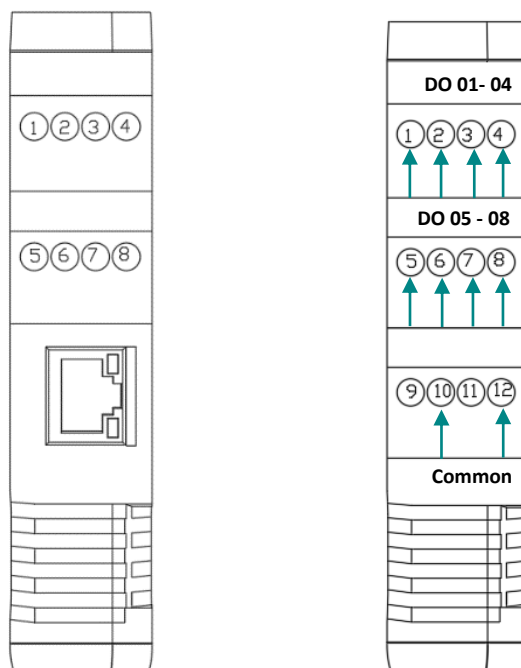
- All devices that are connected to a single serial port must use the same protocol (i.e., either Modbus RTU or Modbus ASCII).
- Connect the D+ with pin no.1 and D- with pin no.2 and Earth with pin no.7 or 8 as illustrated in the pin's assignments to complete the connection successfully.
- Turn on the dip switch to have 120 Ω termination resistor between the D+ and D- lines. Refer hardware configuration section.

## Connecting to a Host or the Network

There is a 10/100 Ethernet port at the module's top panel. This port is used to connect the module with a host or Ethernet network.

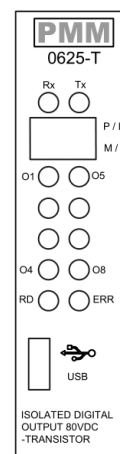
## Connecting Digital Output

Connect the signal line with one of the eight digital output pins on the bottom view (01-08) and the common line for digital outputs from (1-4) with pin no.10 and the common line for digital outputs from (5-8) with pin No. 12.



There are 12x LED indicators at the front panel. 2x LED are for communication indication through RS485 and 8x LED for indicating the outputs status.

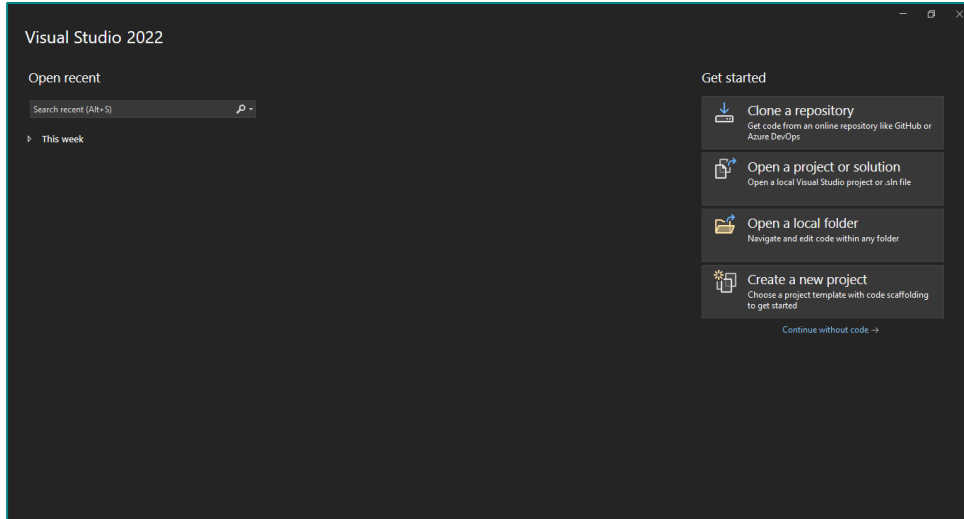
LED No.	Indication
Rx, Tx	Indicating the communication through RS485 port OFF: No Data is being transmitted or received through the port Flickering Green: Data is being transmitted or received through the port
Ox-O8	Indicating the status of Output x OFF: Output x is off Steady-Green: Output x is on



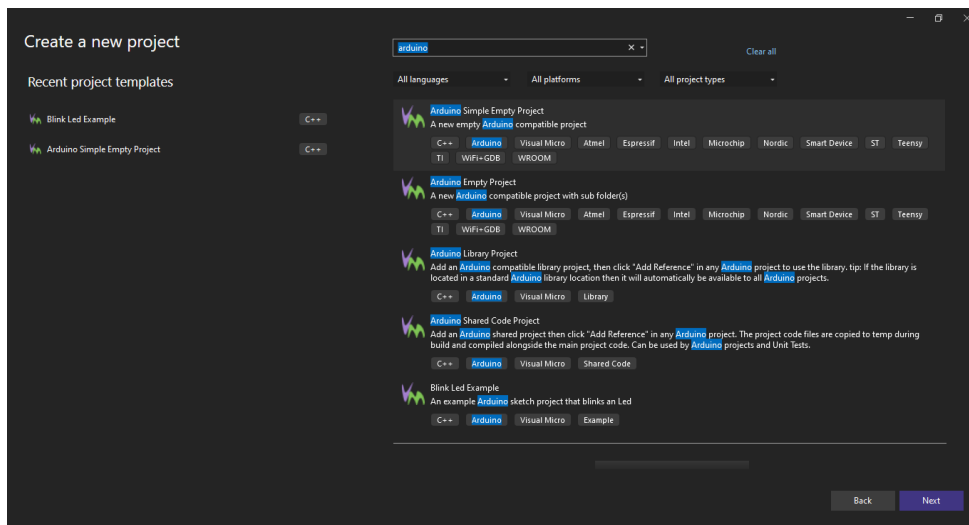
## Connecting the USB

Connect the USB to the device through the USB port in the front panel (Micro-USB type), and connect the other side with personal computer (PC). Once the USB is connected correctly between the device and PC, the user can start the integration as explained in the Integration Guidelines:

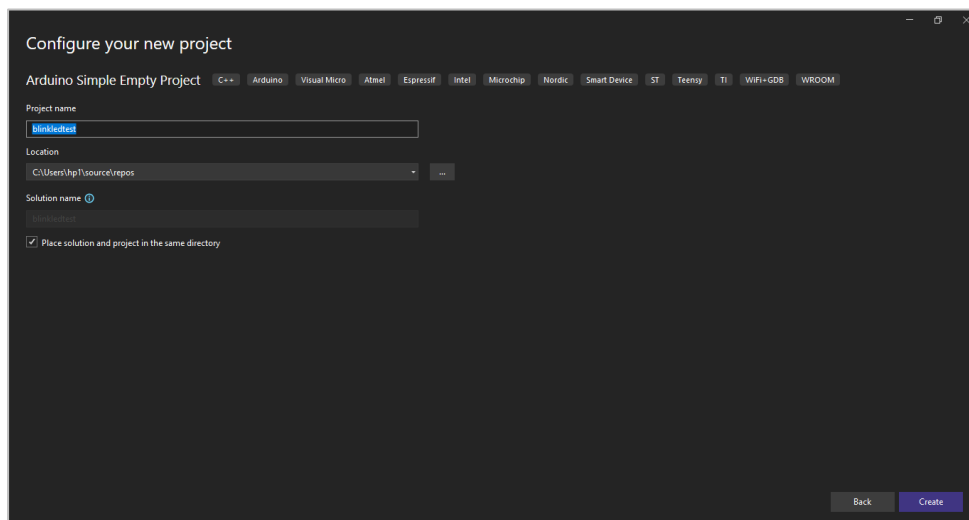
1. To start working click on “create a new project”.



2. Choose the Arduino simple empty project.

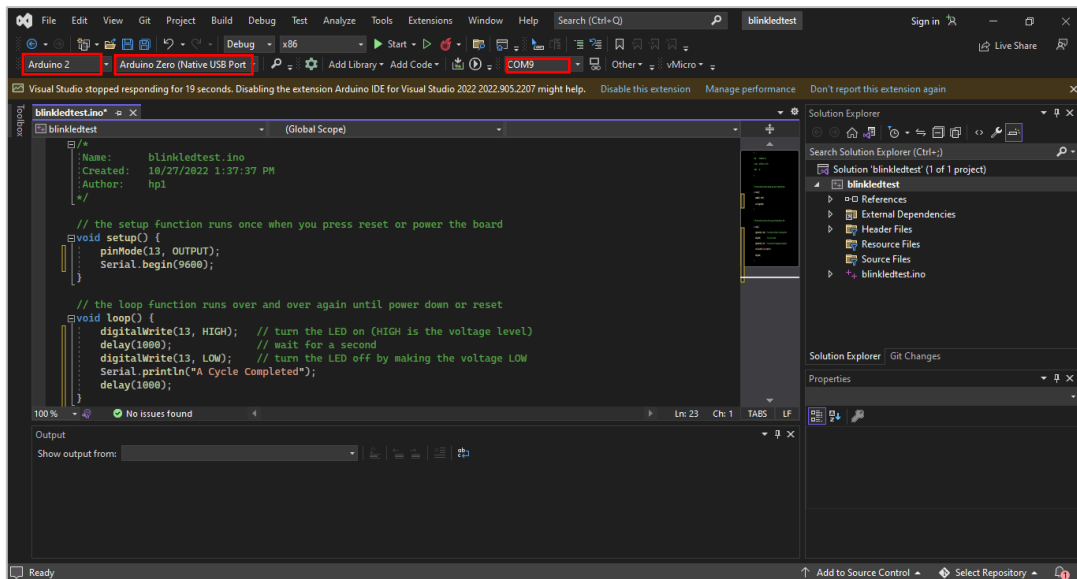


3. Name your project and select desired location.

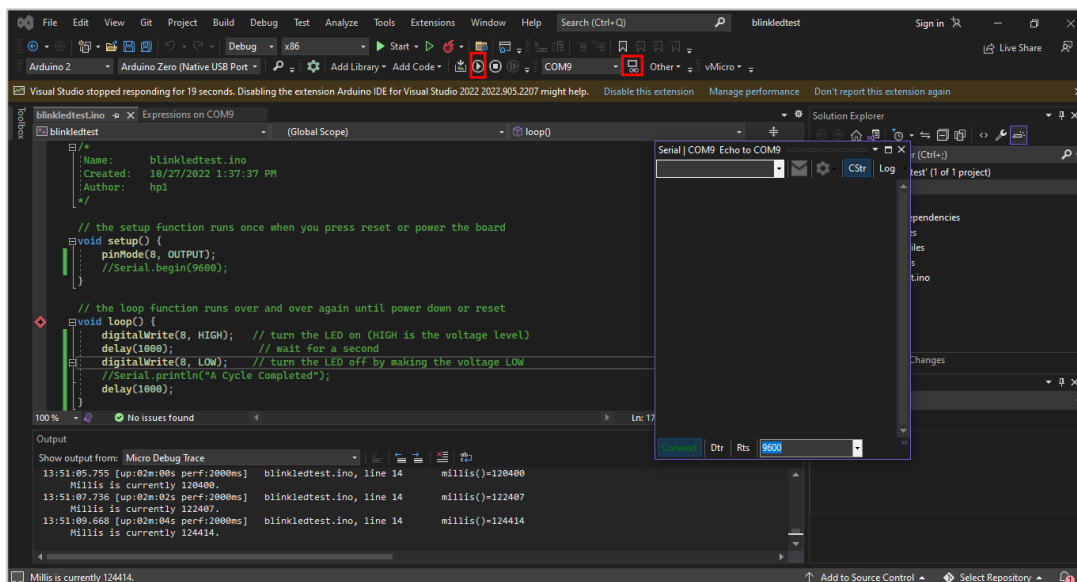




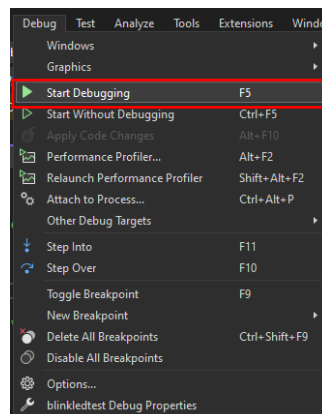
4. Choose the Arduino zero board, the Arduino IDE configure location and the port.



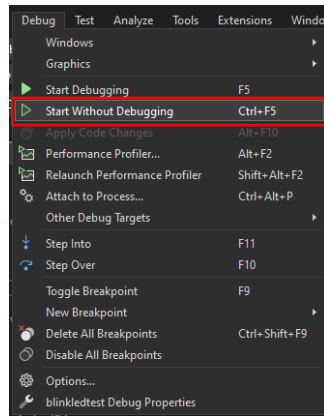
5. After writing your program, to build press on the play button and open the serial monitor by pressing on the small monitor next to the port.



6. To debug and start go to the toolbar>debug> start debugging.



7. If you wish to start without debugging go to the toolbar >debug> start without debugging



8. Now your program should be running.