

MASM32 SDK Installation Guide

Diadkov Viktor

February 28, 2025

Introduction

This guide, prepared by Diadkov Viktor, provides step-by-step instructions to install the MASM32 SDK, verify the installation, set up the necessary environment variables, create a sample file called `hello.asm`, and build the project using the command line.

Step 1: Install MASM32 SDK

Download:

Visit the official website:

<http://www.masm32.com/>

Install:

Run the installer and install MASM32 SDK (default installation directory is `C:\masm 32`).

Step 2: Verify Installation

To verify that MASM32 is correctly installed, open `cmd.exe` and run the following command:

```
dir C:\masm32\include\windows.inc
```

If the file exists, then the installation is correct.

Step 3: Set Environment Variables

Open the System Properties (search for “environment variables” in Windows). Then add or edit the following variables:

- **INCLUDE:** C:\masm 32\include
- **LIB:** C:\masm 32\lib
- **PATH:** C:\masm 32\bin

These variables allow the system to locate the necessary include files, libraries, and executables.

Step 4: Create the hello.asm File

Create a file named hello.asm (for example, in the directory E:\masm 32\Folder) and insert the following content:

Content of hello.asm:

```
; Sample MASM program
.686
.model flat, stdcall

option casemap:none

include C:\masm32\include\windows.inc
include C:\masm32\include\kernel32.inc
include C:\masm32\include\masm32.inc

includelib C:\masm32\lib\kernel32.lib
includelib C:\masm32\lib\masm32.lib

.data
    message db "Hello boi!", 0

.code

main PROC
    invoke StdOut, addr message
    invoke ExitProcess, 0
    ret
main ENDP

end main
```

Note: **Paths may vary** – adjust them if MASM32 is installed in a different directory.

Step 5: Build Using the Command Line

Open cmd.exe and navigate to the directory containing hello.asm. Then run the following commands:

5.1 Assemble

```
ml /c /Zd /coff /I C:\masm32\include hello.asm
```

This command assembles hello.asm and produces the object file hello.obj.

5.2 Link

```
C:\masm32\bin\link.exe /subsystem:console /LIBPATH:C:\masm32\lib hello.obj
```

This command creates the executable hello.exe.

5.3 Run

```
hello.exe
```

Running this should display "Hello boi!" on the screen.

Optional: Installing MASM with Visual Studio

If you prefer to work within an Integrated Development Environment (IDE), you can install Visual Studio Community Edition. Visual Studio provides excellent project management and debugging tools. For a detailed tutorial on setting up MASM within Visual Studio, please watch:

https://www.youtube.com/watch?v=zb0uzJkk4Fs&ab_channel=Dr.NinaJavaher

You can download Visual Studio Community Edition from:

<https://visualstudio.microsoft.com/vs/community/>