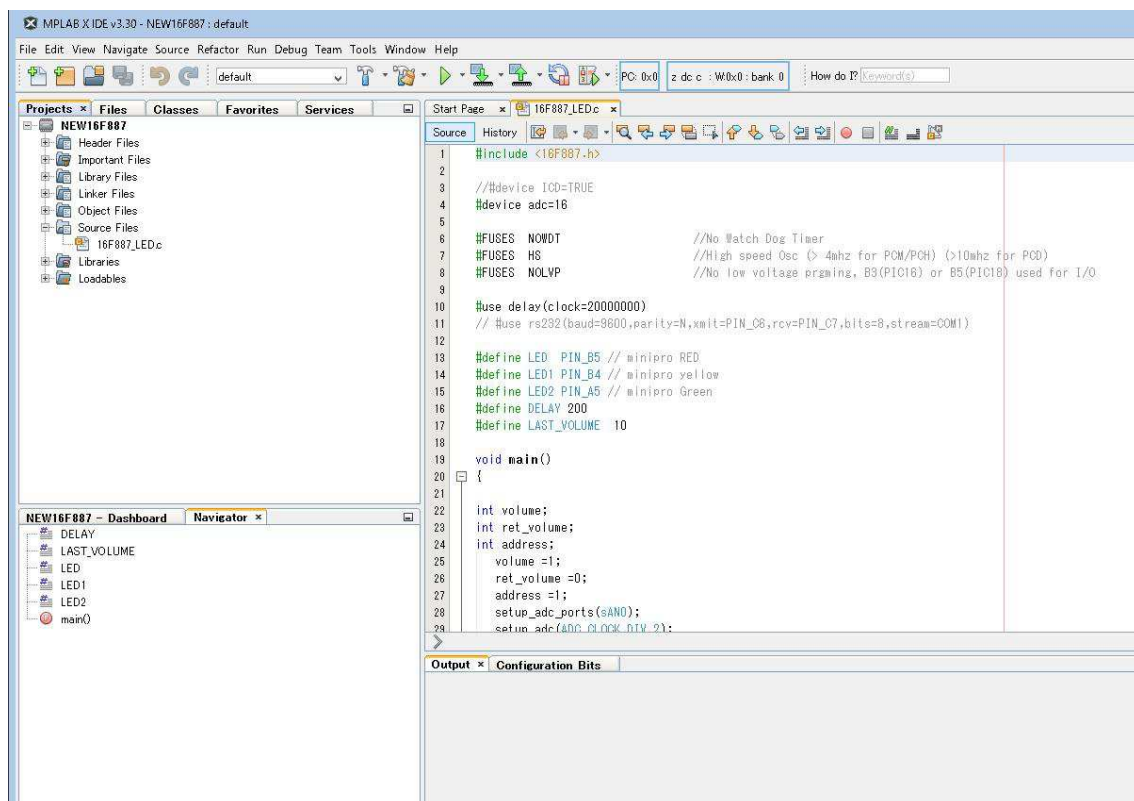


MPLAB-X の CCS インストールと組み込み方法

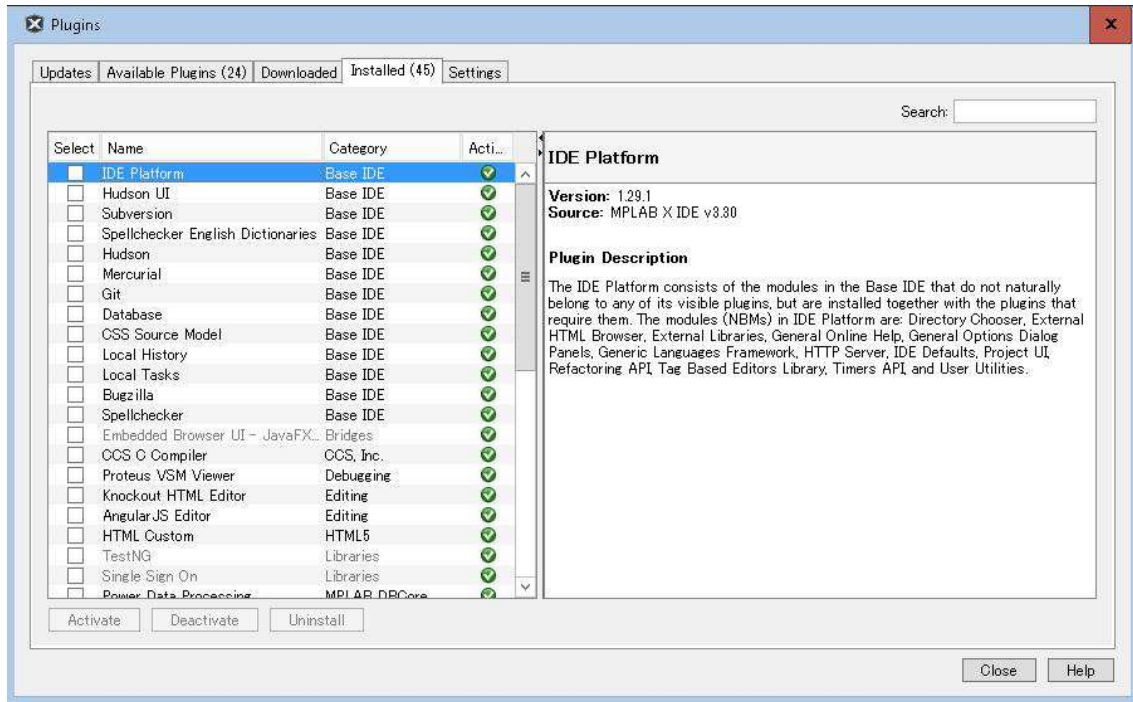
PICKIT3 等のライターを使用する場合は Device のプログラムは `ccsload` ではできませんので MPLAB-X を用いてください。

PCWH を用いる場合は書き込みとデバッグは可能です。

この場合 PICKIT3 はあらかじめ MPLAB-X で F/W を最新にしてください。



以下を参考に Plugin の確認をし、必要に応じて install ください



Plugins

Updates Available Plugins (24) Downloaded Installed (45) Settings

Search:

Select	Name	Category	Acti...
<input type="checkbox"/>	toolchainC30	MPLAB IDE	✓
<input type="checkbox"/>	toolchainASM30	MPLAB IDE	✓
<input type="checkbox"/>	MessageCenter	MPLAB IDE	✓
<input type="checkbox"/>	toolchainC18	MPLAB IDE	✓
<input type="checkbox"/>	MPLAB Home	MPLAB IDE	✓
<input type="checkbox"/>	toolchainHF-TECH	MPLAB IDE	✓
<input type="checkbox"/>	toolchainCommon	MPLAB IDE	✓
<input type="checkbox"/>	toolchainXC16	MPLAB IDE	✓
<input type="checkbox"/>	toolchainXC32	MPLAB IDE	✓
<input type="checkbox"/>	toolchainMPASMWIN	MPLAB IDE	✓
<input type="checkbox"/>	toolchainGeneric	MPLAB IDE	✓
<input type="checkbox"/>	toolchainXC8	MPLAB IDE	✓
<input type="checkbox"/>	MPLAB Hidden Menu Filter	MPLAB IDE (Option...	✓
<input type="checkbox"/>	Plugin Update Services	MPLAB Plugin	✓
<input type="checkbox"/>	Notifications	Notifications	✓
<input type="checkbox"/>	RCP Platform	RCP Platform	✓
<input type="checkbox"/>	SDCC Toolchain	Tools	✓
<input type="checkbox"/>	Maintenance	Uncategorized	✓
<input type="checkbox"/>	Embedded Utilities	Uncategorized	✓
<input type="checkbox"/>	Product Release Prompt	Uncategorized	✓
<input type="checkbox"/>	toolchainLicense	Uncategorized	✓
<input type="checkbox"/>	CSS Preprocessors	Web	✓

IDE Platform

Version: 1.29.1
Source: MPLAB X IDE v3.30

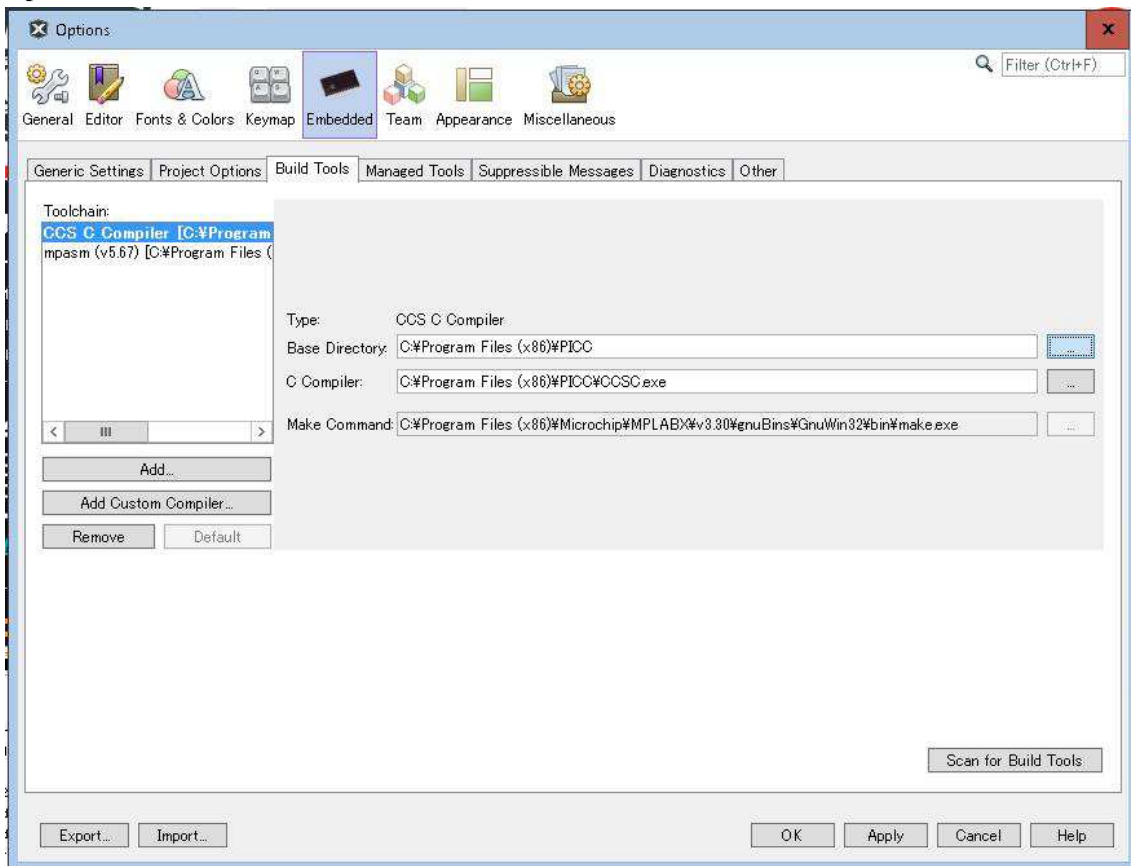
Plugin Description

The IDE Platform consists of the modules in the Base IDE that do not naturally belong to any of its visible plugins, but are installed together with the plugins that require them. The modules (NBMs) in IDE Platform are: Directory Chooser, External HTML Browser, External Libraries, General Online Help, General Options Dialog Panels, Generic Languages Framework, HTTP Server, IDE Defaults, Project UI, Refactoring API, Tag Based Editors Library, Timers API, and User Utilities.

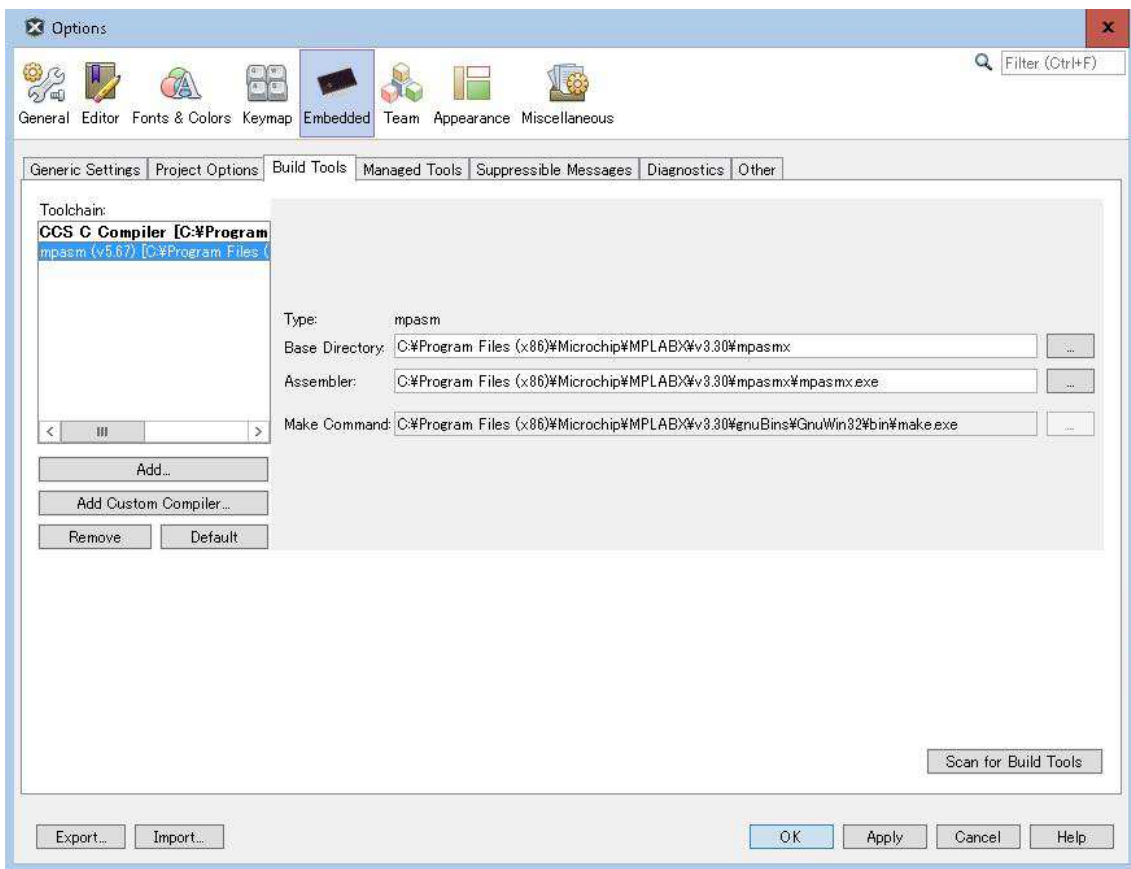
Activate Deactivate Uninstall

Close Help

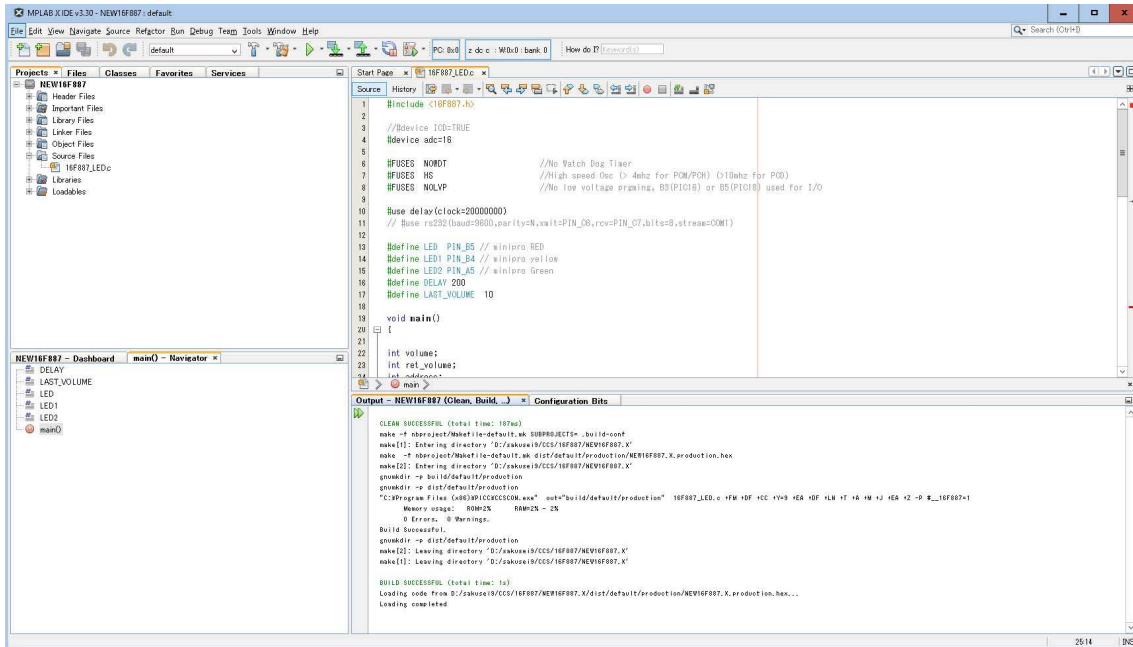
Options でディレクトリを CCS のコンパイラがある位置に変更ください。



アセンブラは初期値で以下となっています。そのまま結構です



プロジェクトを作成しソースファイルを指定し、
Run - Clean and Build Main Project で以下の様に CCS コンパイラを呼び出し
コンパイルが完了します。



Programming は以下で行います

The screenshot displays the MPLAB X IDE v3.30 interface for a project named 'NEW16F887'. A red arrow points to the 'Program' button (a green play icon) in the toolbar. The source code editor shows the following code:

```
1 #include <16F887.h>
2
3 //#device ICD=TRUE
4 #device adc=1B
5
6 #FUSES NOWDT           //No Watch Dog Timer
7 #FUSES HS              //High speed Osc (> 4mhz for PCM/PCH) (>10mhz fo
8 #FUSES NOLVP          //No low voltage prgming, B3(PIC16) or B5(PIC18)
```

The output window shows the following text:

```
*****
Connecting to MPLAB PICKIT 3...

Currently loaded firmware on PICKIT 3
Firmware Suite Version.....01.41.07 *
Firmware type.....Midrange

Now Downloading new Firmware for target device: PIC16F887
Downloading bootloader
Bootloader download complete
Programming download...
Downloading RS...
RS download complete
Programming download...
Downloading AP...
AP download complete
Programming download...

Currently loaded firmware on PICKIT 3
Firmware Suite Version.....01.42.18
Firmware type.....Midrange

Target voltage detected
Target device PIC16F887 found.
Device ID Revision = 2

The following memory area(s) will be programmed:
program memory: start address = 0x0, end address = 0xa7
configuration memory

Device Erased...

Programming...
Programming/Verify complete
```

The Navigator window at the bottom left shows the project structure with 'main()' selected.

MPLAB-X はクローズしてください。

PCWH(D)を立ち上げます

PICKIT3 を用いています。 コンパイルしプログラムします。

The screenshot displays the CCS C Compiler IDE. The main window shows a C program for PIC16F887. The code includes headers, defines pins for LEDs, and contains a main function that sets up ADC and comparator modules. The interface shows the 'Compile' menu and 'Program' button highlighted with red arrows. The output window at the bottom shows successful compilation and programming status.

```
1 #include <16F887.h>
2
3 //#device ICD=TRUE
4 #device adc=16
5
6 #FUSES NOWDT           //No Watch Dog Timer
7 #FUSES HS              //High speed Osc (> 4mhz for PCM/PCH) (>10mhz for PC0)
8 #FUSES NOLVP          //No low voltage prgming, B3(PIC16) or B5(PIC18) used for I/O
9
10 #use delay(clock=2000000)
11 // #use rs232(baud=9600,parity=N,xmit=PIN_C6,rcv=PIN_C7,bits=8,stream=COM1)
12
13 #define LED1 PIN_B5 // minipro RED
14 #define LED2 PIN_B4 // minipro yellow
15 #define LED3 PIN_A5 // minipro Green
16 #define DELAY 200
17 #define LAST_VOLUME 10
18
19 void main()
20 {
21     int volume;
22     int ret_volume;
23     int address;
24     volume =1;
25     ret_volume =0;
26     address =1;
27     setup_adc_ports(sANO);
28     setup_adc(ADC_CLOCK_DIV_2);
29     setup_comparator(NC_NO_NC_NC);
30
31     // setup_oscillator(OSC_8MHZ);
32     while(address < 0xf0)
33     {
34 }
```

Output window shows:

```
Memory usage: ROM=2%  RAM=2%-2%
0 Errors, 0 Warnings.
Build Successful.
CCSLOAD: Connecting
CCSLOAD: Programming PIC16F887
CCSLOAD: Programming Complete
CCSLOAD: Target Running
```


デバッグの場合は以下の設定となります。

The screenshot shows the CCS C Compiler interface. The main window displays the source code for '16F887_LED.c'. The code includes the following relevant lines:

```
1 #include <16F887.h>
2
3 #device ICD=TRUE
4 #device adc=18
5
6 #FUSES NOWDT //No Watch Dog Timer
7 #FUSES HS //High speed Osc (> 4mhz for PCM/PCH) (>10m
8 #FUSES NOLVP //No low voltage prgming, B3(PIC16) or B5(P
```

The 'Debug' window on the right shows the configuration for 'MPLABX - PICKIT 3'. The configuration table is as follows:

RAM	ROM	Data EE	Breaks	Stack	Watches	Peripherals
Eval	Monitor	Break Log	RTOS Tasks	SFR	Debug Configure	
MPLABX - PICKIT 3						
Compile Reload	True					
Mouse over eval	True					
Timeout Mouse over	True					
Mouse over radix	Default					
Monitor enabled	False					
Echo on Monitor	True					
Monitor Font Size	9					
Processor	PIC16F887					
Port Type	USB					
Port Number	0					

At the bottom of the Debug window, there is a checkbox labeled 'When TRUE the target will be reloaded after every compile' which is checked. Below it are 'Apply' and 'Cancel' buttons. The status bar at the bottom indicates 'PC=0070 W=00 Ready MCU at 0.00 MHz'.

ボードのスタンドアロン動作のためには忘れずに ICD=TRUE をコメントアウトして
コンパイルしておきましょう。

