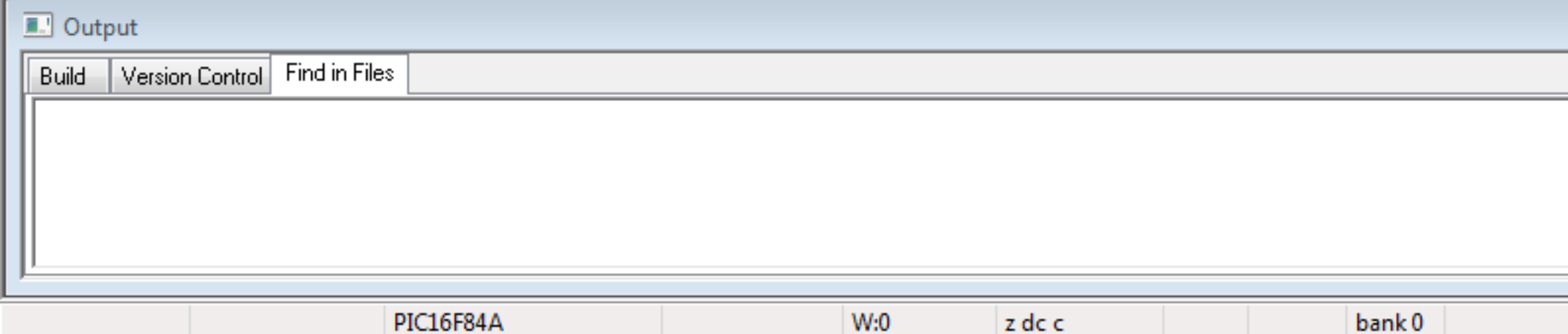
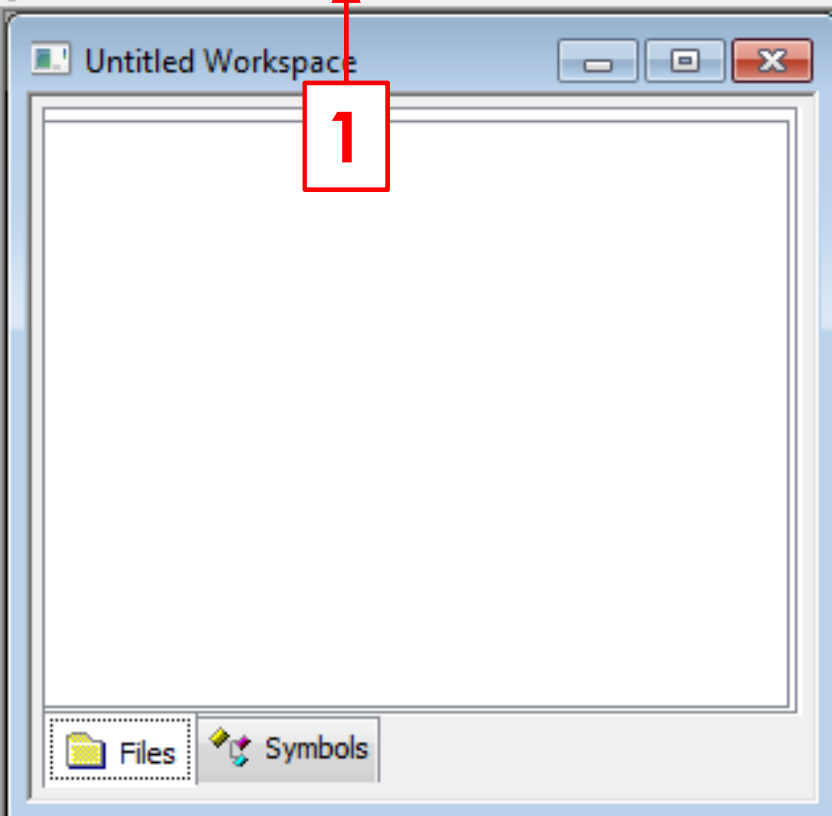


The background of the slide features the Microchip MPLAB IDE logo. It consists of a large red stylized 'M' shape. Inside the lower part of the 'M' is a red circle containing a white stylized 'U' or 'M' shape. To the right of the 'M' is a red banner with the text 'MICROCHIP' and 'MPLAB' in white. The entire logo is set against a blue background with a grid pattern and a glowing effect.

MPLAB IDE v8.60



Checksum: 0x3bff



Project Wizard...

Checksum: 0x3bff

New...

Open...

Close

Set Active Project

2

Quickbuild (no .asm file)

Package in .zip

Clean

Build Configuration

Build Options...

Save Project

Save Project As...

Add Files to Project...

Add New File to Project...

Remove File From Project

Select Language Toolsuite...

Set Language Tool Locations...

Version Control...

Project Wizard

Welcome!

This wizard helps you create or configure a new MPLAB IDE project.

3

To continue, click Next.

< Voltar

Avançar >

Cancelar

Ajuda

Checksum: 0x3bff

Output

Build

Version Control

Find in Files

PIC16F84A

W:0

z dc c

bank 0

Project Wizard

Step One:

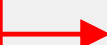
Select a device



4



5



Device:

PIC16F84A

6



< Voltar

Avançar >

Cancelar

Ajuda

Checksum: 0x3bff

Output

Build

Version Control

Find in Files

PIC16F84A

W:0

z dc c

bank 0

Project Wizard

Step Two:

Select a language toolsuite



Active Toolsuite: Microchip MPASM Toolsuite



7

Toolsuite Contents

MPASM Assembler (mpasmwin.exe) v5.37
MPLINK Object Linker (mplink.exe) v4.37
MPLIB Librarian (mplib.exe) v4.37

Location

C:\Program Files\Microchip\MPASM Suite\MPASMWIN.exe

Browse...

☐ Store tool locations in project

8

Help! My Suite Isn't Listed!

☐ Show all installed toolsuites

< Voltar

Avançar >

Cancelar

Ajuda

Output

Build

Version Control

Find in Files

Project Wizard

Step Three:

Create a new project, or reconfigure the active project?



☒ Create New Project File

Browse...

☐ Reconfigure Active Project

☐ Make changes without saving

☐ Save changes to existing project file

☐ Save changes to another project file

Browse...

< Voltar

Avançar >

Cancelar

Ajuda

Output

Build

Version Control

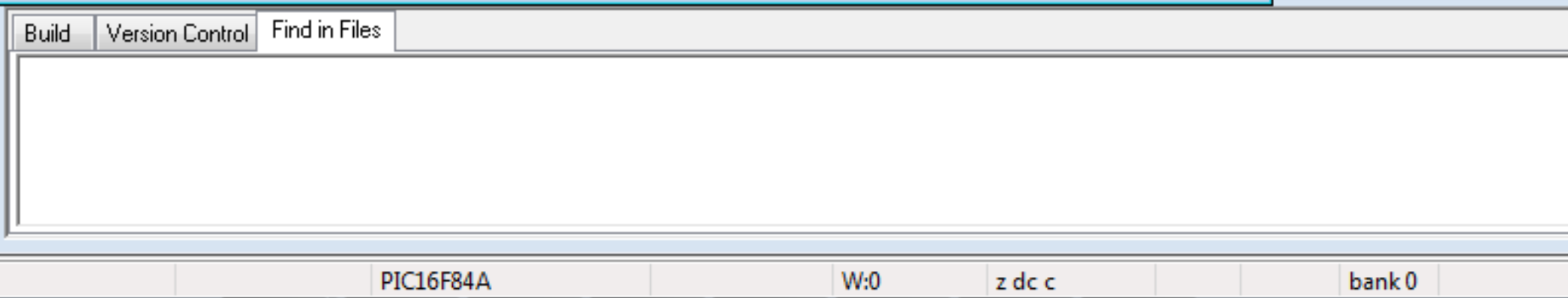
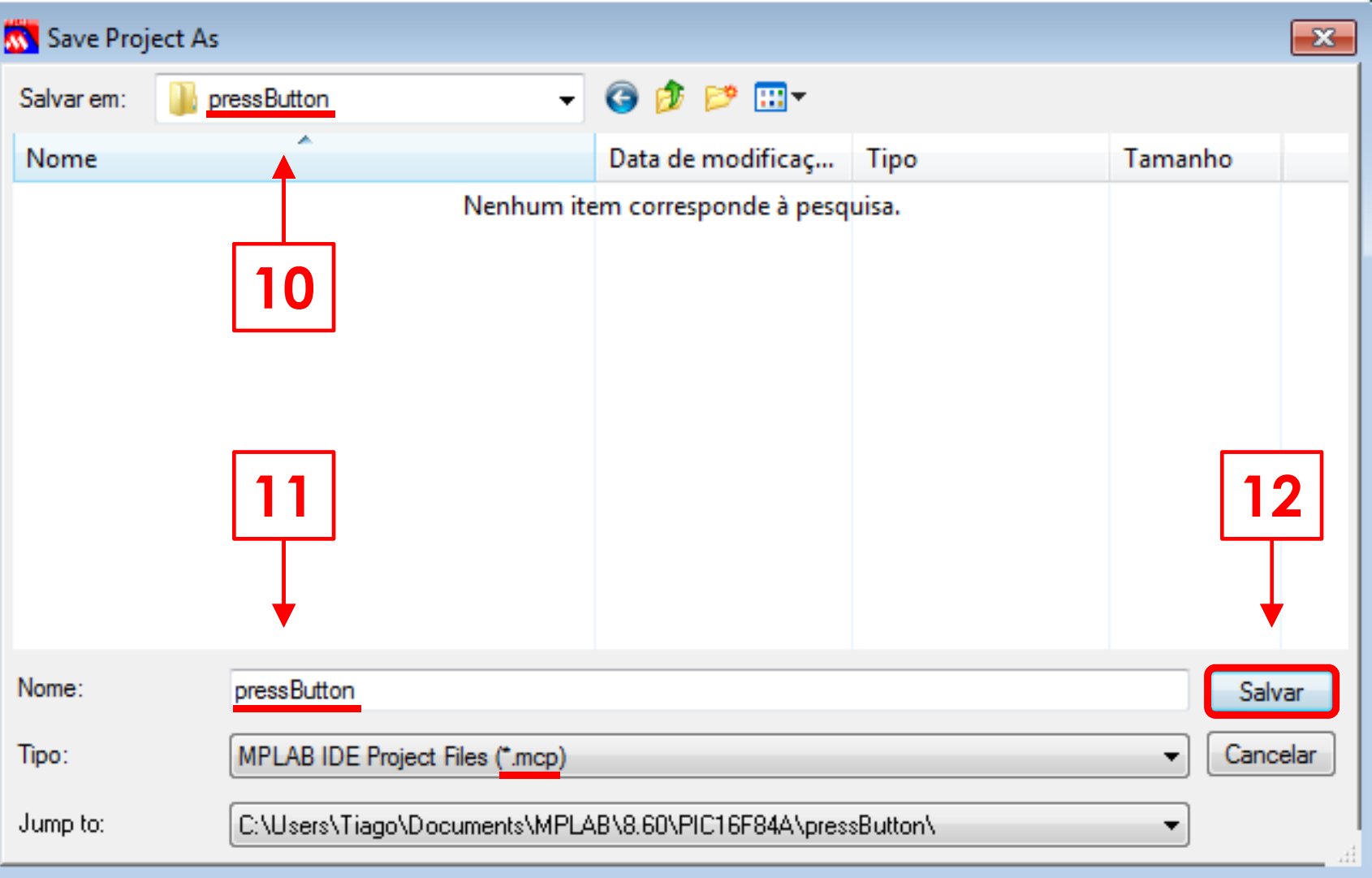
Find in Files

PIC16F84A

W:0

z dc c

bank 0



Project Wizard

Step Three:

Create a new project, or reconfigure the active project?



☒ Create New Project File

C:\Users\Tiago\Documents\MPLAB\8.60\PIC16F84A\pressButton

Browse...

☐ Reconfigure Active Project

☐ Make changes without saving

☐ Save changes to existing project file

☐ Save changes to another project file

13

Browse...

< Voltar

Avançar >

Cancelar

Ajuda

Output

Build

Version Control

Find in Files

PIC16F84A

W:0

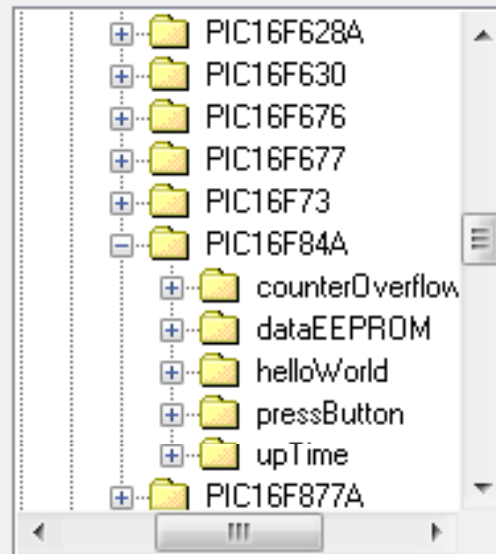
z d c c

bank 0

Project Wizard

Step Four:

Add existing files to your project



Add >>

Remove

14

< Voltar

Avançar >

Cancelar

Ajuda

Checksum: 0x3bff

Output

Build

Version Control

Find in Files

PIC16F84A

W:0

z dc c

bank 0

Project Wizard

Summary

Click 'Finish' to create/configure the project with these parameters.

Project Parameters

Device: PIC16F84A

Toolsuite: Microchip MPASM Toolsuite

File: C:\Users\Tiago\Documents\MPLAB\8.60\PIC

A new workspace will be created, and the new project added to that workspace.

15

< Voltar

Concluir

Cancelar

Ajuda

Checksum: 0x3bff

Output

Build

Version Control

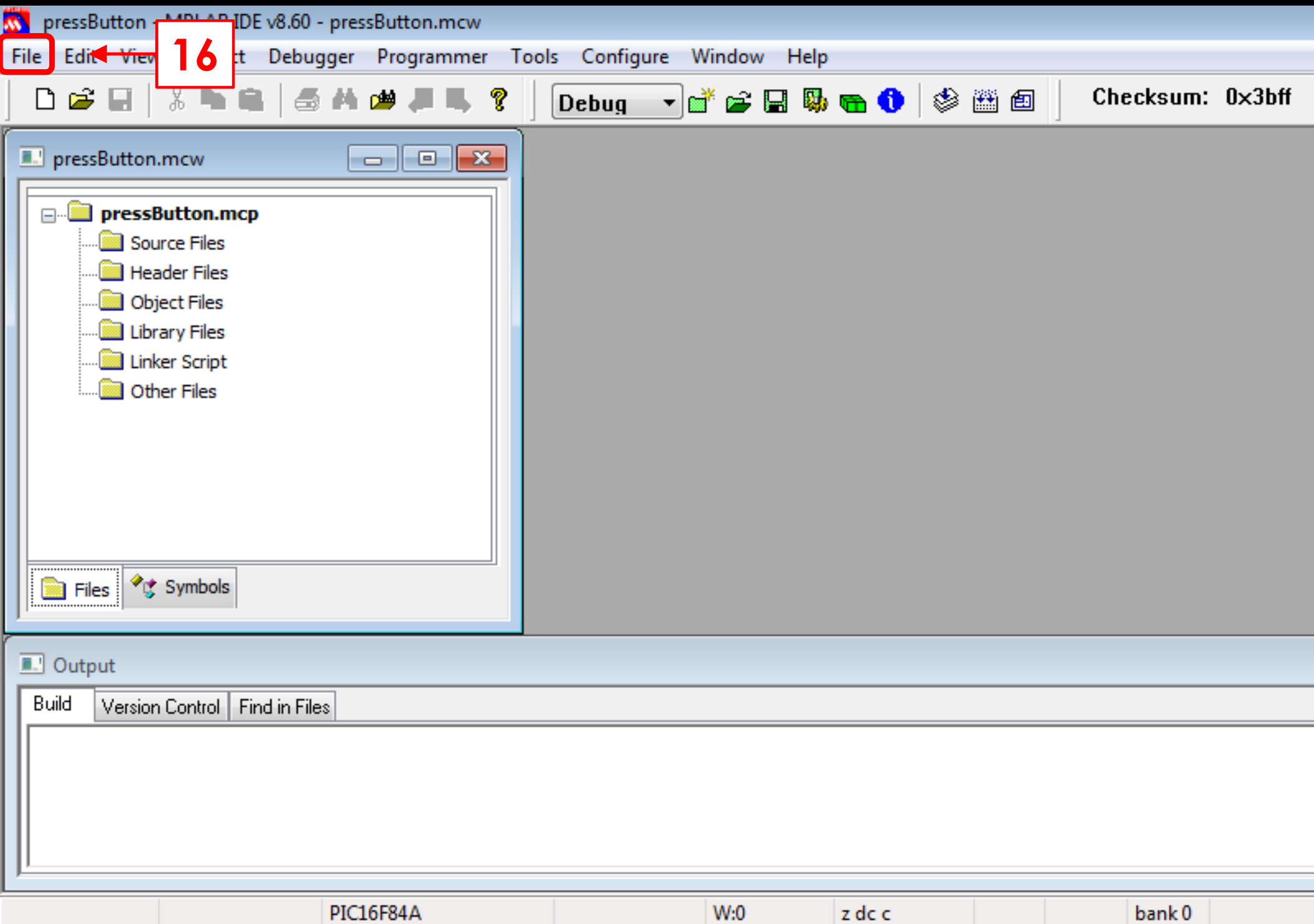
Find in Files

PIC16F84A

W:0

z dc c

bank 0



New Ctrl+N

Add New File to Project...

Open... Ctrl+O

Close Ctrl+E

Save Ctrl+S

Save As...

Save All Ctrl+Shift+S

Open Workspace...

Save Workspace

Save Workspace As...

Close Workspace

Import...

Export...

Print... Ctrl+P

Recent Files ▶

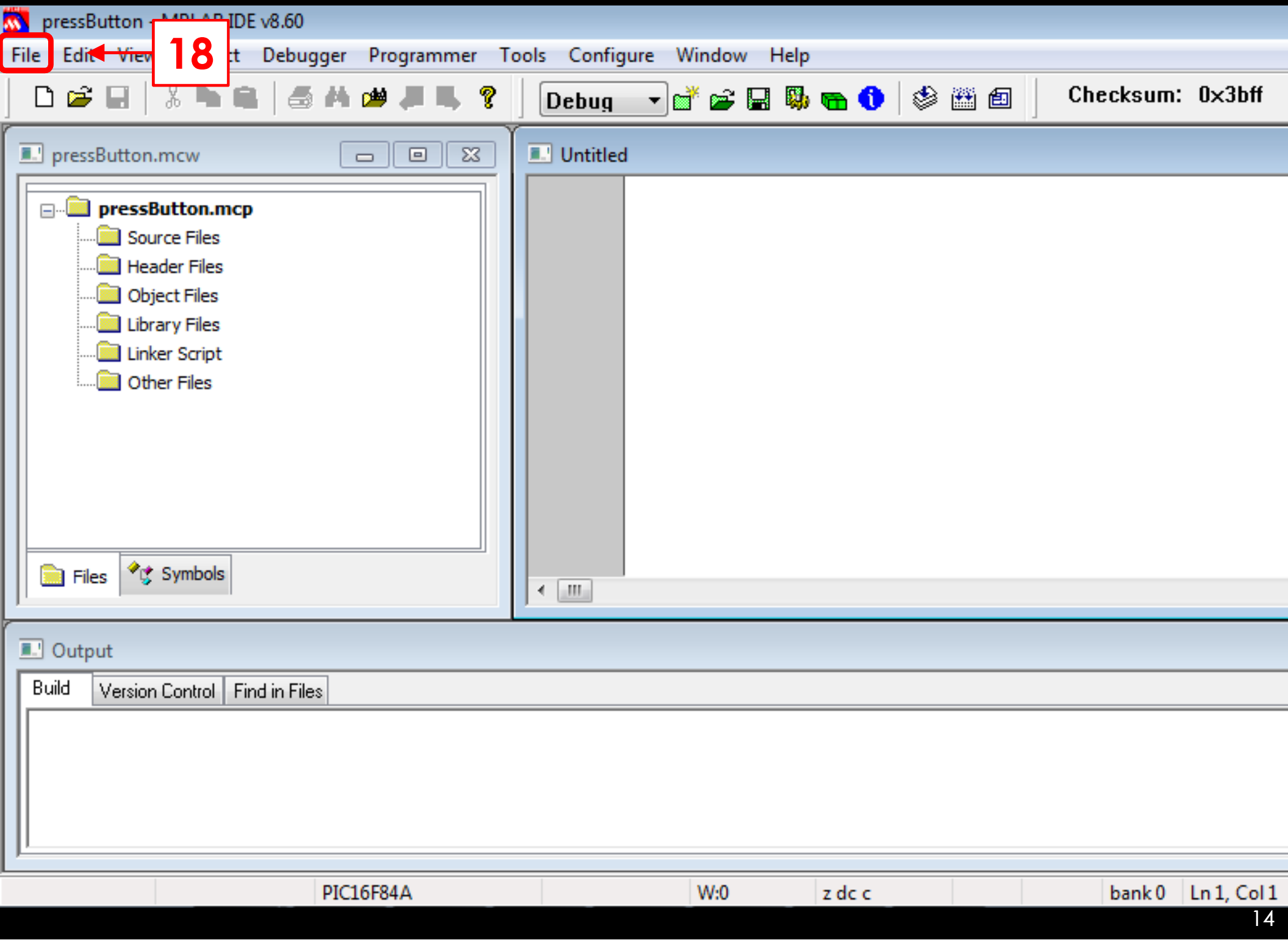
Recent Workspaces ▶

Exit

17

Debug

Checksum: 0x3bff



New Ctrl+N

Add New File to Project...

Open... Ctrl+O

Close Ctrl+E

Save Ctrl+S

Save As...

Save All Ctrl+Shift+S

Open Workspace...

Save Workspace

Save Workspace

Close Workspace

Import...

Export...

Print... Ctrl+P

Recent Files

Recent Workspaces

Exit



Debug



Checksum: 0x3bff

Untitled

19

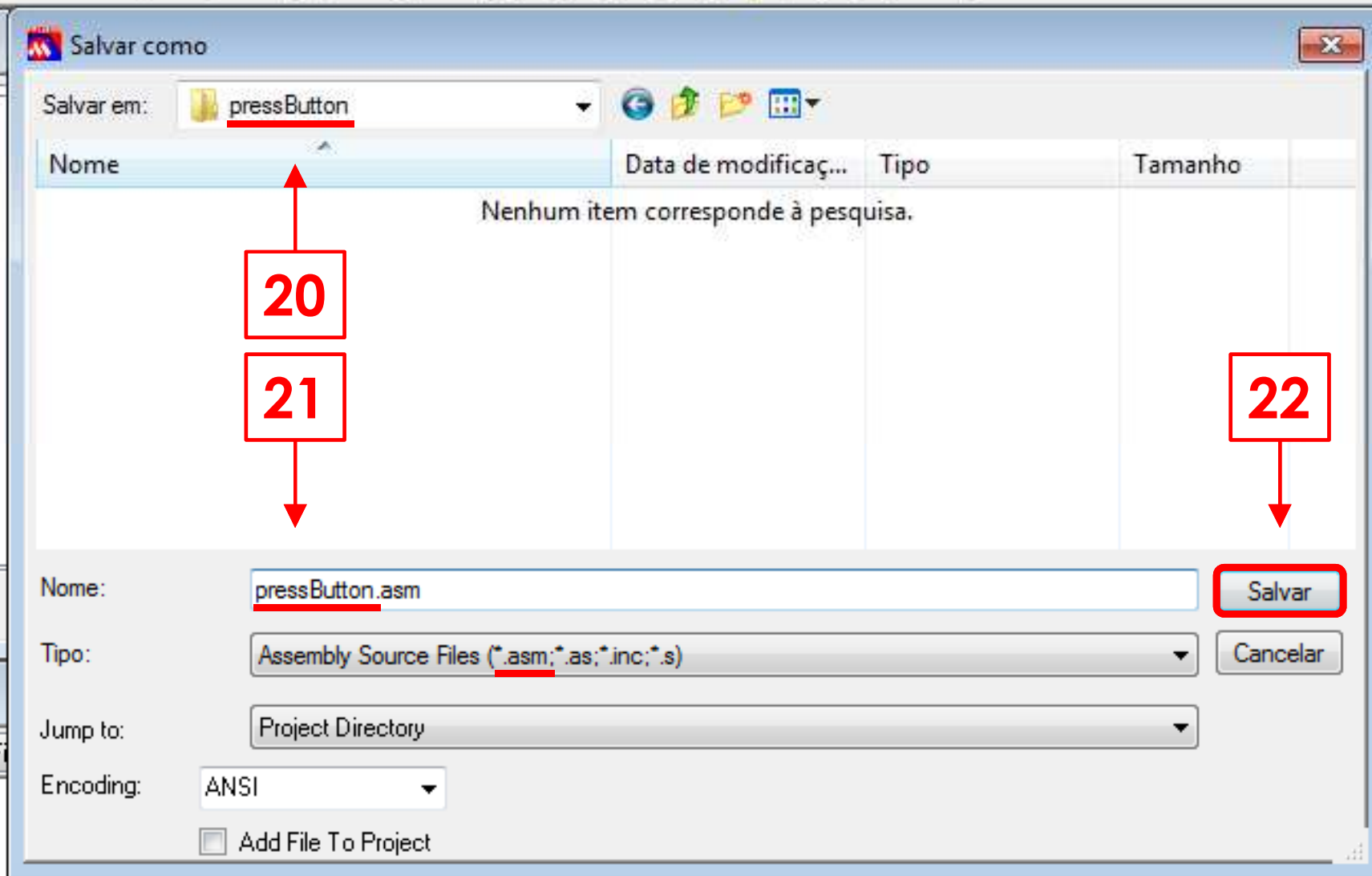
cw

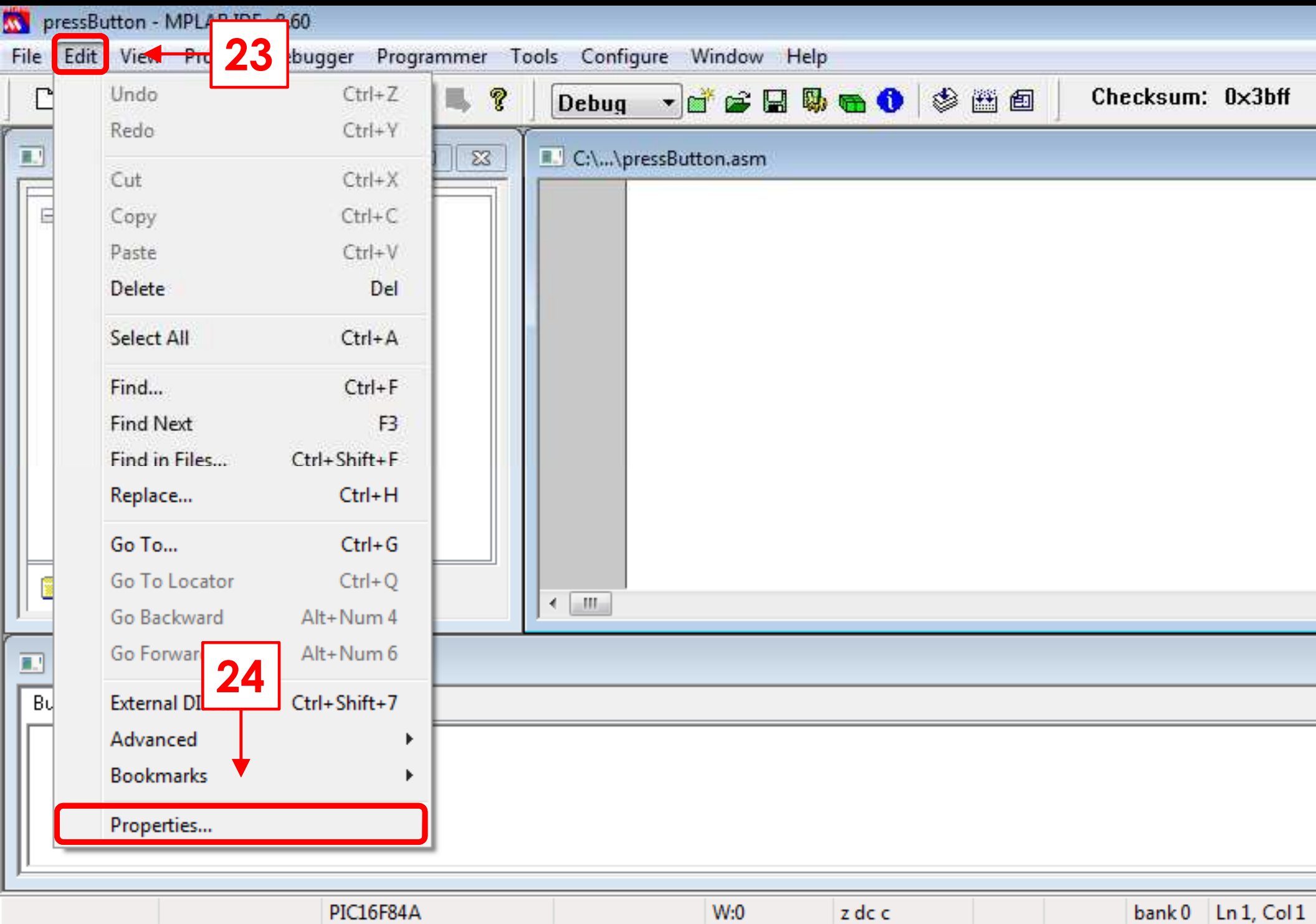
ton.mcp

Files
Files
Files
Files
Script
Files

mbols

ontrol Find in F





Editor Properties

General 'ASM' File Types

Tools

25

☒ Line Numbers

☐ Line Wrap

✗ ☐ Double Click Toggles Breakpoint

☐ Print Line Numbers

☐ Repair Mismatched CR/LF on Save

☐ Enable Code Folding - Use ;{ and ;}

☒ Auto Indent

26

Tabs

Tab size:
(1 - 16)

4

27

Insert spaces

☒ Keep tabs

OK

Cancelar

Aplicar

Ajuda

Build

Version Control

Find in Files

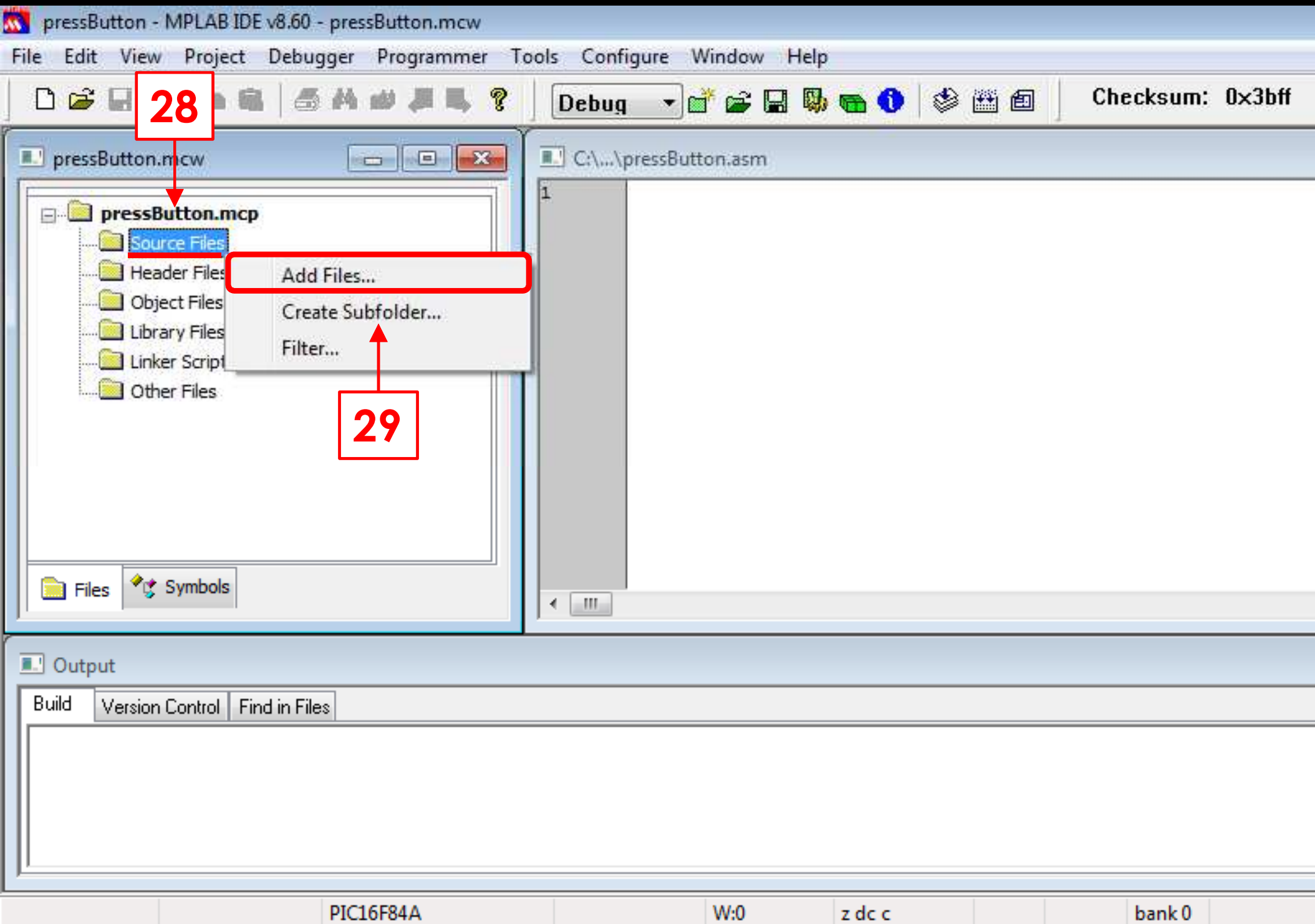
PIC16F84A

W:0

z dc c

bank 0

Ln 1, Col 1



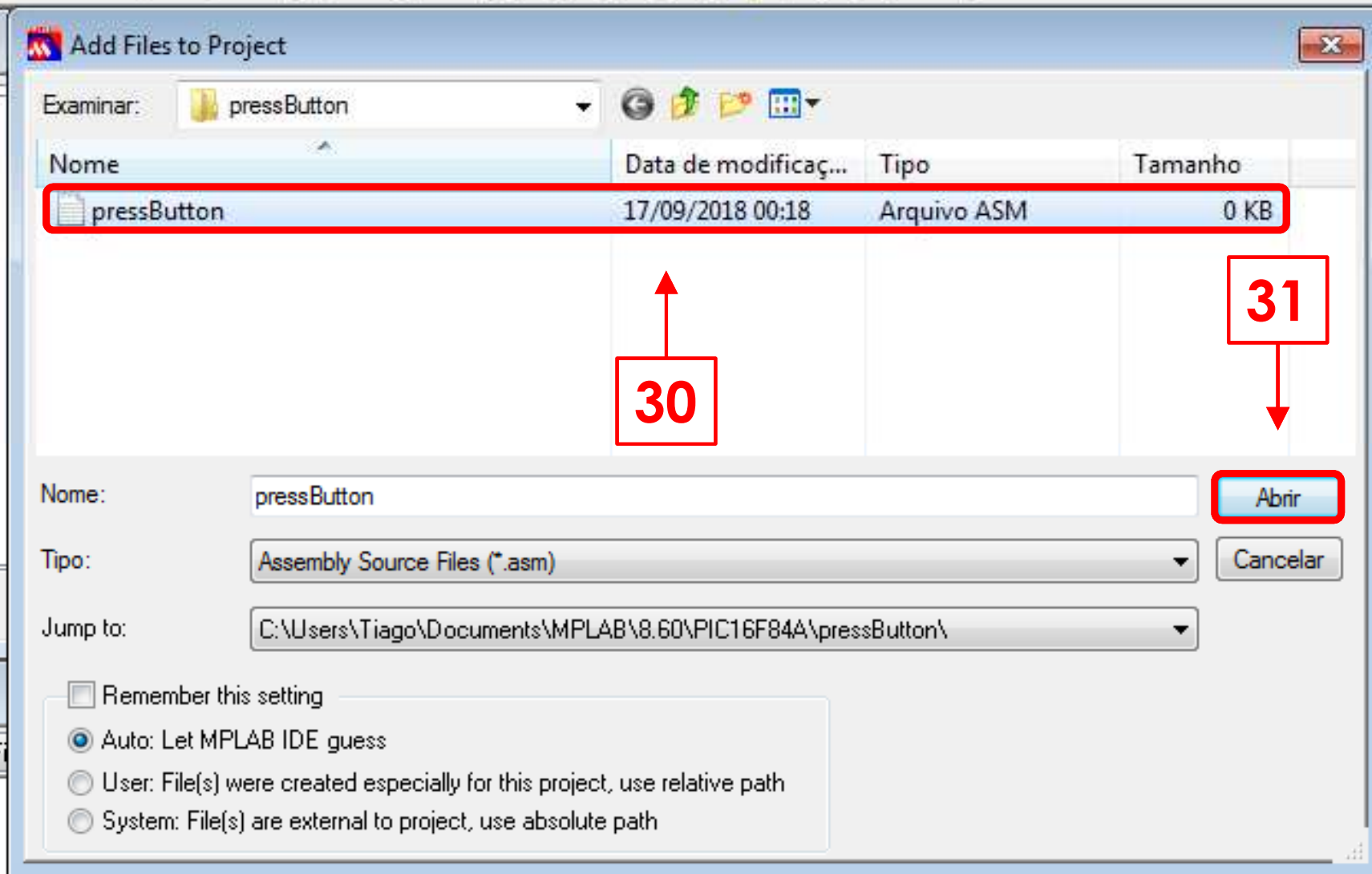
mcw

ton.mcp

Files
Files
Files
Files
Script
Files

mbols

Control Find in File





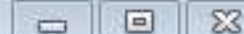
Debug



33

m: 0x3bff

CW



ton.mcp*

Files

essButton.asm

Files

Files

Files

Script

Files

mbols

C:\...\pressButton.asm*

32

```
1      #INCLUDE <P16F84A.INC>
2      __CONFIG _CP_OFF&_PWRTE_ON&_WDT_OFF&_XT_OSC
3
4      ORG      0x00      ;Set Program Counter to hex 0
5      BSF      STATUS,RP0 ;Select Bank 1
6      CLRF     TRISB     ;Set RB<7:0> as outputs
7      BCF      STATUS,RP0 ;Select Bank 0
8      TEST     BTFSC     PORTA,RA0 ;Skip next instruction if RA0 = 0
9      GOTO     OFF       ;Go to OFF
10     BSF      PORTB,RB0  ;Set RB0 pin (RB0 = 1)
11     GOTO     TEST       ;Go to TEST
12     OFF      BCF      PORTB,RB0 ;Clear RB0 pin (RB0 = 0)
13     GOTO     TEST       ;Go to TEST
14     END
```

Control Find in Files

pressButton - MPLAB IDE v8.60

File Edit View Project Debugger Programmer Tools Configure Window Help

Checksum: 0x3bff

pressButton.mcw

- pressButton.mcp
 - Source Files
 - pressButton.asm
 - Header Files
 - Object Files
 - Library Files
 - Linker Script
 - Other Files

Files Symbols

C:\...\pressButton.asm

```
1      #INCLUDE <P16F84A.INC>
2      __CONFIG _CP_OFF&_PWRTE_ON&_WDI_OFF&_XT_OSC
3
4      ORG      0x00      ;Set Program Counter to hex 0
5      BSF      STATUS,RP0 ;Select Bank 1
6      CLRF     TRISB     ;Set RB<7:0> as outputs
7      BCF      STATUS,RP0 ;Select Bank 0
8      TEST     BTESC     PORTA,RA0 ;Skip next instruction if RA0 = 1)
                                ;RB0 = 0)
```

Absolute or Relocatable?

Do you want this project to generate absolute or relocatable code?
(You can change this later in the Build Options dialog on the 'Suite' tab.)

Absolute Relocatable

34

Output

Build Version Control Find in Files

Clean: Deleting intermediary and output files.
Clean: Deleted file "C:\Users\Tiago\Documents\MPLAB\8.60\PIC16F84A\pressButton\pressButton.mcs".
Clean: Done.

PIC16F84A W:0 z dc c bank 0

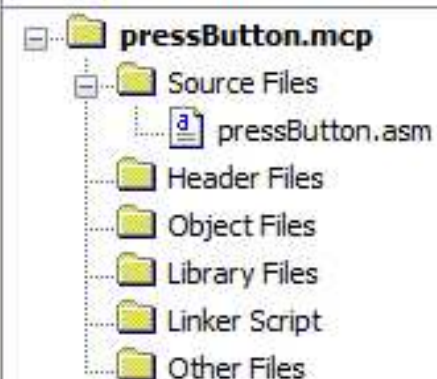
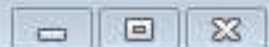


Debug



Checksum: 0xdaa4

pressButton.mcw



Files Symbols

C:\...\pressButton.asm

```
1      #INCLUDE <P16F84A.INC>
2      __CONFIG _CP_OFF&_PWRTE_ON&_WDI_OFF&_XT_OSC
3
4      ORG      0x00      ;Set Program Counter to hex 0
5      BSF      STATUS,RP0 ;Select Bank 1
6      CLRF     TRISB     ;Set RB<7:0> as outputs
7      BCF      STATUS,RP0 ;Select Bank 0
8      TEST     BTFSC     PORTA,RA0 ;Skip next instruction if RA0 = 1
9      GOTO     OFF       ;Go to OFF
10     BSF      PORTB,RB0  ;Set RB0 pin (RB0 = 1)
11     GOTO     TEST       ;Go to TEST
12     OFF      BCF      PORTB,RB0 ;Clear RB0 pin (RB0 = 0)
13     GOTO     TEST       ;Go to TEST
14     END
```

Output

Build Version Control Find in Files

Mon Sep 17 00:48:06 2018

BUILD SUCCEEDED

35

PIC16F84A

W:0

z dc c

bank 0

pressButton - MPLAB IDE v8.60 - [Output]

File Edit View Project Debugger Programmer Tools Configure Window Help

Checksum: 0xdaa4

Build Version Control Find in Files

Debug

Debug build of project 'C:\Users\Tiago\Documents\MPLAB\8.60\PIC16F84A\pressButton\pressButton.mcp' started.
Language tool versions: MPASMWIN.exe v5.37, mplink.exe v4.37, mplib.exe v4.37
Preprocessor symbol '__DEBUG' is defined.
Mon Sep 17 00:43:59 2018

36

Cleaning intermediary and output files.
Clean: Deleted file "C:\Users\Tiago\Documents\MPLAB\8.60\PIC16F84A\pressButton\pressButton.mcs".
Clean: Done.
Executing: "C:\Program Files\Microchip\MPASM Suite\MPASMWIN.exe" /q /p16F84A "pressButton.asm" /I"pressButton.lst" /e"pressBu
Message[302] C:\USERS\TIAGO\DOCUMENTS\MPLAB\8.60\PIC16F84A\PRESSBUTTON\PRESSBUTTON.ASM 6 : Register in ope
Executing: "C:\Program Files\Microchip\MPASM Suite\mplink.exe" /p16F84A "pressButton.o" /u_DEBUG /z__MPLAB_BUILD=1 /z__MF
MPLINK 4.37, Linker
Copyright (c) 1998-2010 Microchip Technology Inc.
Errors : 0

Loaded C:\Users\Tiago\Documents\MPLAB\8.60\PIC16F84A\pressButton\pressButton.cof.

Debug build of project 'C:\Users\Tiago\Documents\MPLAB\8.60\PIC16F84A\pressButton\pressButton.mcp' succeeded.
Language tool versions: MPASMWIN.exe v5.37, mplink.exe v4.37, mplib.exe v4.37
Preprocessor symbol '__DEBUG' is defined.
Mon Sep 17 00:48:06 2018

BUILD SUCCEEDED

PIC16F84A W:0 z dc c bank 0

MPLAB IDE v8.60

File Edit **37** Project **Debugger** Programmer Tools Configure Window Help

Select Tool ☒ None
Clear Memory ☐

1 Proteus VSM
2 MPLAB ICD 2
3 PICkit 3
4 MPLAB ICE 4000
5 MPLAB SIM
6 MPLAB ICE 2000
7 REAL ICE
8 PICkit 2
9 MPLAB ICE 1000
39
10 PICkit 3
11 Starter Kits
12 PICkit 3 On Board

pressButton.mcw

pressButton.mcp

- Source Files
 - pressButton.asm
- Header Files
- Object Files
- Library Files
- Linker Script
- Other Files

Files Symbols

Checksum: 0xdaa4

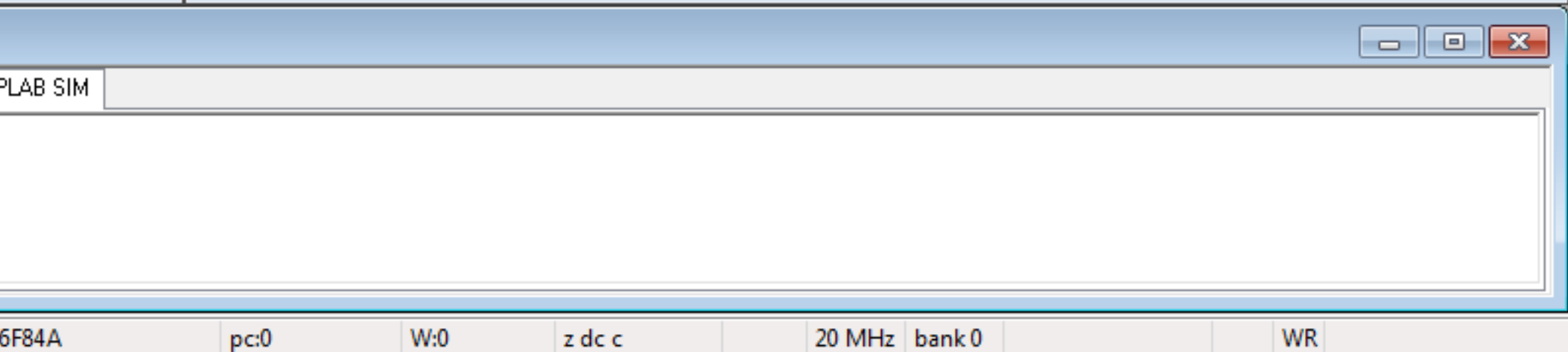
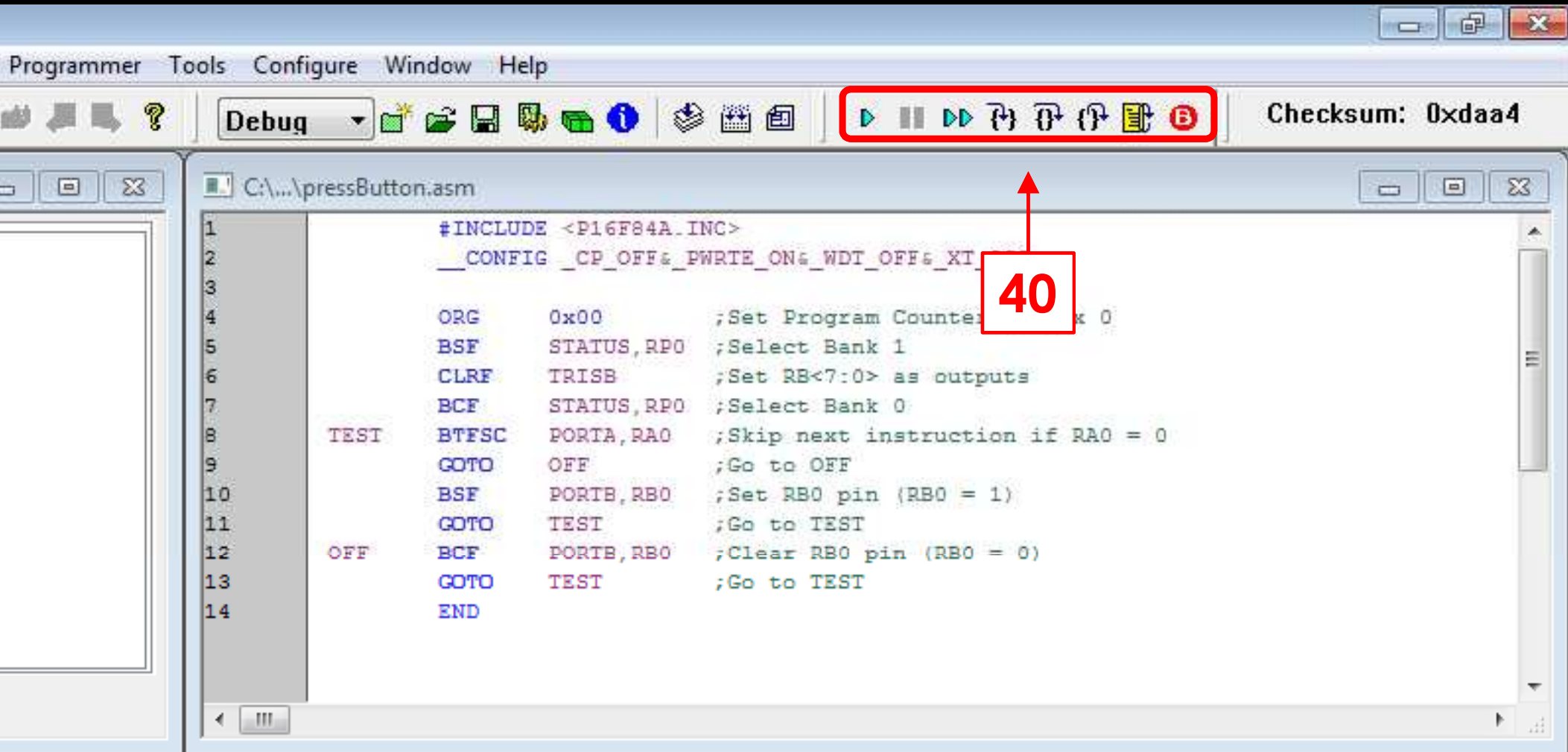
```
P16F84A.INC>  
CP_OFF&_PWRTE_ON&_WDI_OFF&_XT_OSC  
000 ;Set Program Counter to hex 0  
STATUS,RPO ;Select Bank 1  
RISB ;Set RB<7:0> as outputs  
STATUS,RPO ;Select Bank 0  
ORTA,RA0 ;Skip next instruction if RA0 =  
FF ;Go to OFF  
ORTB,RB0 ;Set RB0 pin (RB0 = 1)  
TEST ;Go to TEST  
ORTB,RB0 ;Clear RB0 pin (RB0 = 0)  
TEST ;Go to TEST
```

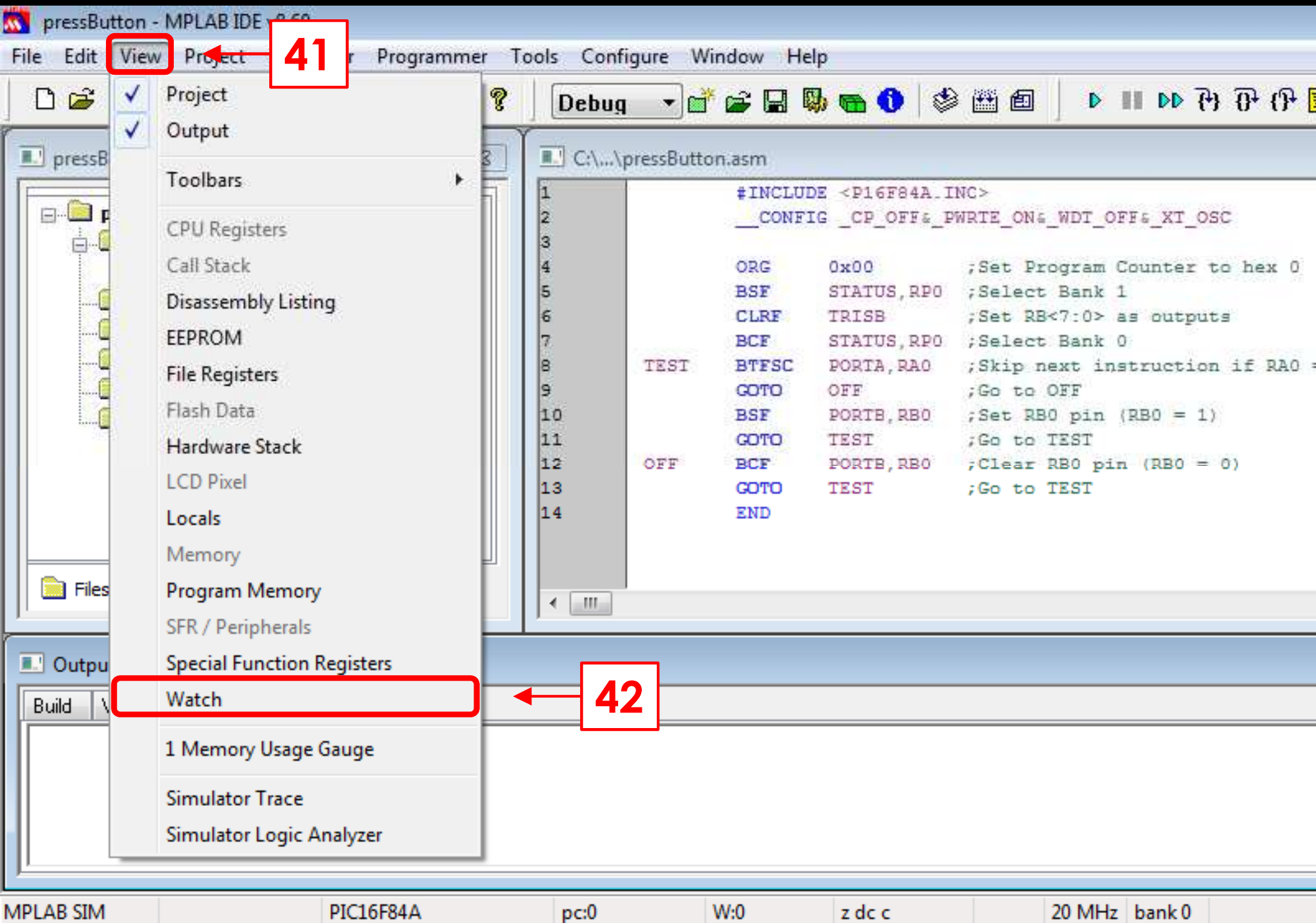
Output

Build Version Control Find in Files

Debug build of project 'C:\Users\Tiago\Documents\MPLAB\8.60\PIC16F84A\pressButton\pressButton.mcp' started.
Language tool versions: MPASMWIN.exe v5.37, mplink.exe v4.37, mplib.exe v4.37
Preprocessor symbol '__DEBUG' is defined.

PIC16F84A W:0 z dc c bank 0





Programmer Tools Configure Window Help

Debug

Checksum: 0xdaa4

C:\...\pressButton.asm

```
1      #INCLUDE <P16F84A.INC>
2      __CONFIG _CP_OFF&_PWRTE_ON&_WDI_OFF&_XT_OSC
3
4      ORG      0x00          ;Set Program Counter to hex 0
5      BSF      STATUS,RP0    ;Select Bank 1
6      CLRF     TRISB         ;Set RB<7:0> as outputs
7      BCF      STATUS,RP0    ;Select Bank 0
8      TEST     BTFSC         PORTA,RA0 ;Skip next instruction if RA0 = 0
9      GOTO     OFF           ;Go to OFF
10     BSF      PORTB,RB0      ;Set RB0 pin (RB0 = 1)
11     GOTO     TEST           ;Go to TEST
12     OFF      BCF           PORTB,RB0 ;Clear RB0 pin (RB0 = 0)
13     GOTO     TEST           ;Go to TEST
14     END
```

43

Watch

Add SFR EEADR Add Symbol _CP_OFF

Update	Address	Symbol Name	Value	Hex	Decimal	Binary

Watch 1 Watch 2 Watch 3 Watch 4

PLAB SIM

6F84A pc:0 W:0 z dc c 20 MHz bank 0 WR

Programmer Tools Configure Window Help

Debug Checksum: 0xdaa4

C:\...\pressButton.asm

```
1      #INCLUDE <P16F84A.INC>
2      __CONFIG _CP_OFF&_PWRTE_ON&_WDI_OFF&_XT_OSC
3
4      ORG      0x00      ;Set Program Counter to hex 0
5      BSF      STATUS,RP0 ;Select Bank 1
6      CLRF     TRISB     ;Set RB<7:0> as outputs
7      BCF      STATUS,RP0 ;Select Bank 0
8      TEST     BTFSC     PORTA,RA0 ;Skip next instruction if RA0 = 0
9      GOTO     OFF
10     BSF      PORTB,RB0  ;Set RB0 pin (RB0 = 1)
11     GOTO     TEST
12     OFF      BCF      PORTB,RB0 ;Clear RB0 pin (RB0 = 0)
13     GOTO     TEST
14     END
```

44 →

Watch

Add SFR EEADR Add Symbol _CP_OFF

Update	Address	Symbol Name	Value	Hex

Watch 1 Watch 2 Watch 3 Watch 4

PLAB SIM

6F84A pc:0 W:0 z dc c 20 MHz bank 0 WR

- ☒ Address
- ☒ Symbol Name
- ☒ Value
- ☒ Hex
- ☒ Decimal
- ☒ Binary
- ☐ Char
- ☒ Update
- ☐ Comment
- More ...

Programmer Tools Configure Window Help

Debug

Checksum: 0xdaa4

C:\...\pressButton.asm

```
1      #INCLUDE <P16F84A.INC>
2      __CONFIG _CP_OFF&_PWRTE_ON&_WDI_OFF&_XT_OSC
3
4      ORG      0x00      ;Set Program Counter to hex 0
5      BSF      STATUS,RP0 ;Select Bank 1
6      CLRF     TRISB     ;Set RB<7:0> as outputs
7      BCF      STATUS,RP0 ;Select Bank 0
8      TEST    BTFSC     PORTA,RA0 ;Skip next instruction if RA0 = 0
9      GOTO     OFF
10     BSF      PORTB,RB0  ;Set RB0 pin (RB0 = 1)
11     GOTO     TEST
12     OFF     BCF      PORTB,RB0 ;Clear RB0 pin (RB0 = 0)
13     GOTO     TEST
14     END
```

45

46

Watch

Add SFR TRISB Add Symbol _CP_OFF

Update	Address	Symbol Name	Value	Hex	Decimal	Binary
	03	STATUS	0x18	0x18	24	00011000
	05	PORTA	0x00	0x00	0	00000000
	06	PORTB	0x00	0x00	0	00000000
	85	TRISA	0x00	0x00	0	00000000
	86	TRISB	0x00	0x00	0	00000000

Watch 1 Watch 2 Watch 3 Watch 4

PLAB SIM

6F84A pc:0 W:0 z dc c 20 MHz bank 0 WR

pressButton - MPLAB IDE v8.60

File Edit View Project **Debugger** Program Tools Configure Window Help

47

pressButton.mcw

pressButton.mcp

- Source Files
 - pressButton
- Header Files
- Object Files
- Library Files
- Linker Script
- Other Files

Files Symbols

Output

Build Version Control File

Debugger Menu:

- Select Tool
- Clear Memory
- Run F9
- Animate
- Halt F5
- Step Into F7
- Step Over F8
- Step Out
- Reset
- Breakpoints F2
- StopWatch
- Complex Breakpoints
- Stimulus**
- Profile
- Clear Code Coverage
- Refresh PM
- Settings...

48

Stimulus Sub-menu:

- New Workbook**
- Open Workbook
- Save Workbook
- Save Workbook As
- Close Workbook

49

pressButton.asm

```
#INCLUDE <P16F84A.INC>
__CONFIG _CP_OFF&_PWRTE_ON&_WDI_OFF&_XT_OSC

ORG 0x00 ;Set Program Counter to hex 0
BSF STATUS,RP0 ;Select Bank 1
CLRF TRISB ;Set RB<7:0> as outputs
BCF STATUS,RP0 ;Select Bank 0
TEST BTFSC PORTA,RA0 ;Skip next instruction if RA0 = 1
OFF ;Go to OFF
PORTB,RB0 ;Set RB0 pin (RB0 = 1)
TEST ;Go to TEST
OFF BCF PORTB,RB0 ;Clear RB0 pin (RB0 = 0)
GOTO TEST
END
```

Watch

Update	Address	Symbol Name	Value
	03	STATUS	0
	05	PORTA	0
	06	PORTB	0
	85	TRISA	0
	86	TRISB	0

MPLAB SIM PIC16F84A pc:0 W:0 z dc c 20 MHz bank 0

Watch 1 Watch 2 Watch 3 Watch 4

Debug

Checksum: 0xdaa4

C:\...\pressButton.asm

```

1      #INCLUDE <P16F84A.INC>
2      __CONFIG __CP_OFF&_PWRTE_ON&_WDI_OFF&_XT_OSC
3
4      ORG      0x00          ;Set Program Counter to hex 0
5      BSF      STATUS,RP0    ;Select Bank 1
6      CLRF     TRISB
7
8      TEST     BTFSC         PORTA,RA0
9      GOTO     OFF
10     BSF      PORTB,RB0
11     GOTO     TEST
12     OFF      BCF          PORTB,RB0
13     GOTO     TEST
14     END
    
```

50

Stimulus - [Untitled]

Asynch Pin / Register Actions Advanced Pin / Register Clock Stimulus Register I

Fire	Pin / SFR	Action	Width	Units	Comments / Message

Watch

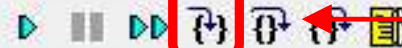
Add SFR TRISB Add Symbol _CP_OFF

Update	Address	Symbol Name	Value	Hex	Decimal	Binary
	03	STATUS	0x18	0x18	24	00011000
	05	PORTA	0x00	0x00	0	00000000
	06	PORTB	0x00	0x00	0	00000000
	85	TRISA	0x00	0x00	0	00000000
	86	TRISB	0x00	0x00	0	00000000

Watch 1 Watch 2 Watch 3 Watch 4

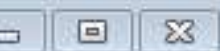


Debug



53

Checksum: 0xdaa4



C:\...\pressButton.asm

```

1      #INCLUDE <P16F84A.INC>
2      __CONFIG __CP_OFF&_PWRTE_ON&_WDI_OFF&_XT_OSC
3
4      ORG      0x00      ;Set Program Counter to hex 0
5      BSF      STATUS,RP0 ;Select Bank 1
6      CLRF     TRISB
7      BCF      STATUS,RP0
8      TEST     BTFSC    PORTA,RA0
9      GOTO     OFF
10     BSF      PORTB,RB0
11     GOTO     TEST
12     OFF      BCF      PORTB,RB0
13     GOTO     TEST
14     END
    
```

Stimulus [Untitled]

Asynch Pin / Register Actions Advanced Pin / Register Clock Stimulus Register I

Fire	Pin / SFR	Action	Width	Units	Comments / Message
	RA0	Toggle			

Watch

Add SFR TRISB Add Symbol _CP_OFF

Update	Address	Symbol Name	Value	Hex	Decimal	Binary
	03	STATUS	0x18	0x18	24	00011000
	05	PORTA	0x00	0x00	0	00000000
	06	PORTB	0x00	0x00	0	00000000
	85	TRISA	0x00	0x00	0	00000000
	86	TRISB	0x00	0x00	0	00000000

Watch 1 Watch 2 Watch 3 Watch 4

PLAB SIM

6F84A

pc:0

W:0

z dc c

20 MHz

bank 0

WR

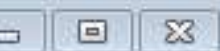


Debug



55

Checksum: 0xdaa4



C:\...\pressButton.asm

```

1      #INCLUDE <P16F84A.INC>
2      __CONFIG _CP_OFF&_PWRTE_ON&_WDI_OFF&_XT_OSC
3
4      ORG      0x00      ;Set Program Counter to hex 0
5      BSF      STATUS,RP0 ;Select Bank 1
6      CLRF     TRISB
7
8      TEST     BTFSC    PORTA,RA0
9      GOTO     OFF
10     BSF      PORTB,RB0
11     GOTO     TEST
12     OFF      BCF      PORTB,RB0
13     GOTO     TEST
14     END
    
```

Stimulus - [Untitled]

Asynch Pin / Register Actions Advanced Pin / Register Clock Stimulus Register I

Fire	Pin / SFR	Action	Width	Units	Comments / Message
>	RA0	Toggle			

Watch

Add SFR	TRISB	Add Symbol	_CP_OFF			
Update	Address	Symbol Name	Value	Hex	Decimal	Binary
	03	STATUS	0x38	0x38	56	00111000
	05	PORTA	0x00	0x00	0	00000000
	06	PORTB	0x00	0x00	0	00000000
	85	TRISA	0x1F	0x1F	31	00011111
	86	TRISB	0xFF	0xFF	255	11111111
Watch 1	Watch 2	Watch 3	Watch 4			

PLAB SIM

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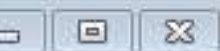


Debug



57

Checksum: 0xdaa4



C:\...\pressButton.asm

```

1      #INCLUDE <P16F84A.INC>
2      __CONFIG __CP_OFF&_PWRTE_ON&_WDI_OFF&_XT_OSC
3
4      ORG      0x00          ;Set Program Counter to hex 0
5      BSF      STATUS,RP0    ;Select Bank 1
6
7      CLRF     TRISB
8
9      TEST     BTFSC         PORTA,RA0
10
11     BSF      PORTB,RB0
12
13     GOTO     TEST
14
15     OFF      BCF           PORTB,RB0
16
17     GOTO     TEST
18
19     END
    
```

Stimulus - [Untitled]

Asynch Pin / Register Actions Advanced Pin / Register Clock Stimulus Register I

Fire	Pin / SFR	Action	Width	Units	Comments / Message
>	RA0	Toggle			

Watch

Add SFR TRISB Add Symbol _CP_OFF

Update	Address	Symbol Name	Value	Hex	Decimal	Binary
	03	STATUS	0x3C	0x3C	60	00111100
	05	PORTA	0x00	0x00	0	00000000
	06	PORTB	0x00	0x00	0	00000000
	85	TRISA	0x1F	0x1F	31	00011111
	86	TRISB	0x00	0x00	0	00000000

Watch 1 Watch 2 Watch 3 Watch 4

PLAB SIM

56

6F84A

pc:0x2

W:0

Z dc c

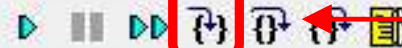
20 MHz

bank 1

WR

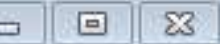


Debug



59

Checksum: 0xdaa4



C:\...\pressButton.asm

```

1      #INCLUDE <P16F84A.INC>
2      __CONFIG __CP_OFF&_PWRTE_ON&_WDI_OFF&_XT_OSC
3
4      ORG      0x00          ;Set Program Counter to hex 0
5      BSF      STATUS,RP0    ;Select Bank 1
6      CLRF     TRISB
7
8      TEST     BTFSC         PORTA,RA0
9      GOTO     OFF
10     BSF      PORTB,RB0
11     GOTO     TEST
12     OFF      BCF          PORTB,RB0
13     GOTO     TEST
14     END
    
```

Stimulus - [Untitled]

Asynch Pin / Register Actions Advanced Pin / Register Clock Stimulus Register I

Fire	Pin / SFR	Action	Width	Units	Comments / Message
>	RA0	Toggle			

Watch

Add SFR	TRISB	Add Symbol	_CP_OFF			
Update	Address	Symbol Name	Value	Hex	Decimal	Binary
	03	STATUS	0x1C	0x1C	28	00011100
	05	PORTA	0x00	0x00	0	00000000
	06	PORTB	0x00	0x00	0	00000000
	85	TRISA	0x1F	0x1F	31	00011111
	86	TRISB	0x00	0x00	0	00000000
Watch 1	Watch 2	Watch 3	Watch 4			

PLAB SIM

58

6F84A

pc:0x3

W:0

Z dc c

20 MHz bank 0

C:\...\pressButton.asm

```

1      #INCLUDE <P16F84A.INC>
2      __CONFIG _CP_OFF&_PWRTE_ON&_WDI_OFF&_XT_OSC
3
4      ORG      0x00          ;Set Program Counter to hex 0
5      BSF      STATUS,RP0    ;Select Bank 1
6      CLRF     TRISB
7      BCF      STATUS,RP0
8      TEST     BTFSC        PORTA,RA0
9      GOTO     OFF
10     BSF      PORTB,RB0
11     GOTO     TEST
12     OFF      BCF      PORTB,RB0
13     GOTO     TEST
14     END
    
```

Stimulus - [Untitled]

Asynch Pin / Register Actions Advanced Pin / Register Clock Stimulus Register I

Fire	Pin / SFR	Action	Width	Units	Comments / Message
>	RA0	Toggle			

Watch

Add SFR TRISB Add Symbol _CP_OFF

Update	Address	Symbol Name	Value	Hex	Decimal	Binary
	03	STATUS	0x1C	0x1C	28	00011100
	05	PORTA	0x00	0x00	0	00000000
	06	PORTB	0x00	0x00	0	00000000
	85	TRISA	0x1F	0x1F	31	00011111
	86	TRISB	0x00	0x00	0	00000000

Watch 1 Watch 2 Watch 3 Watch 4

C:\...\pressButton.asm

```

1      #INCLUDE <P16F84A.INC>
2      __CONFIG __CP_OFF&_PWRTE_ON&_WDI_OFF&_XT_OSC
3
4      ORG      0x00          ;Set Program Counter to hex 0
5      BSF      STATUS,RP0    ;Select Bank 1
6      CLRF     TRISB
7      BCF      STATUS,RP0
8      TEST     BTFSC         PORTA,RA0
9      GOTO     OFF
10     BSF      PORTB,RB0
11     GOTO     TEST
12     OFF      BCF      PORTB,RB0
13     GOTO     TEST
14     END
    
```

Stimulus - [Untitled]

Asynch Pin / Register Actions Advanced Pin / Register Clock Stimulus Register I

Fire	Pin / SFR	Action	Width	Units	Comments / Message
>	RA0	Toggle			

Watch

Add SFR TRISB Add Symbol _CP_OFF

Update	Address	Symbol Name	Value	Hex	Decimal	Binary
	03	STATUS	0x1C	0x1C	28	00011100
	05	PORTA	0x00	0x00	0	00000000
	06	PORTB	0x01	0x01	1	00000001
	85	TRISA	0x1F	0x1F	31	00011111
	86	TRISB	0x00	0x00	0	00000000

Watch 1 Watch 2 Watch 3 Watch 4

C:\...\pressButton.asm

```

1      #INCLUDE <P16F84A.INC>
2      __CONFIG __CP_OFF&_PWRTE_ON&_WDI_OFF&_XT_OSC
3
4      ORG      0x00          ;Set Program Counter to hex 0
5      BSF      STATUS,RP0    ;Select Bank 1
6      CLRF     TRISB
7
8      TEST     BTFSC         PORTA,RA0
9      GOTO     OFF
10     BSF      PORTB,RB0
11     GOTO     TEST
12     OFF      BCF           ,RB0
13     GOTO     OFF
14     END
    
```

63 →

64

Stimulus - [Untitled]

Asynch Pin / Register Actions Advanced Pin / Register Clock Stimulus Register I

Fire	Pin / SFR	Action	Width	Units	Comments / Message
>	RA0	Toggle			

Watch

Add SFR TRISB Add Symbol _CP_OFF

Update	Address	Symbol Name	Value	Hex	Decimal	Binary
	03	STATUS	0x1C	0x1C	28	00011100
	05	PORTA	0x00	0x00	0	00000000
	06	PORTB	0x01	0x01	1	00000001
	85	TRISA	0x1F	0x1F	31	00011111
	86	TRISB	0x00	0x00	0	00000000

Watch 1 Watch 2 Watch 3 Watch 4

PLAB SIM

Stimulus Toggle RA0 fired.

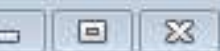


Debug



67

Checksum: 0xdaa4



C:\...\pressButton.asm

```

1      #INCLUDE <P16F84A.INC>
2      __CONFIG __CP_OFF&_PWRTE_ON&_WDI_OFF&_XT_OSC
3
4      ORG      0x00          ;Set Program Counter to hex 0
5      BSF      STATUS,RP0    ;Select Bank 1
6      CLRF     TRISB
7      BCF      STATUS,RP0
8      TEST     BTFSC         PORTA,RA0
9      GOTO     OFF
10     BSF      PORTB,RB0
11     GOTO     TEST
12     OFF      BCF      PORTB,RB0
13     GOTO     TEST
14     END
    
```

Stimulus - [Untitled]

Asynch Pin / Register Actions Advanced Pin / Register Clock Stimulus Register I

Fire	Pin / SFR	Action	Width	Units	Comments / Message
>	RA0	Toggle			

Watch

Add SFR TRISB Add Symbol _CP_OFF

Update	Address	Symbol Name	Value	Hex	Decimal	Binary
	03	STATUS	0x1C	0x1C	28	00011100
	05	PORTA	0x01	0x01	1	00000001
	06	PORTB	0x01	0x01	1	00000001
	85	TRISA	0x1F	0x1F	31	00011111
	86	TRISB	0x00	0x00	0	00000000

Watch 1 Watch 2 Watch 3 Watch 4

PLAB SIM

Stimulus Toggle RA0 fired.

66

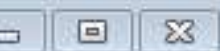


Debug



68

Checksum: 0xdaa4



C:\...\pressButton.asm

```

1      #INCLUDE <P16F84A.INC>
2      __CONFIG _CP_OFF&_PWRTE_ON&_WDI_OFF&_XT_OSC
3
4      ORG      0x00          ;Set Program Counter to hex 0
5      BSF      STATUS,RP0    ;Select Bank 1
6      CLRF     TRISB
7      BCF      STATUS,RP0
8      TEST     BTFSC         PORTA,RA0
9      GOTO     OFF
10     BSF      PORTB,RB0
11     GOTO     TEST
12     OFF      BCF          PORTB,RB0
13     GOTO     TEST
14     END
    
```

Stimulus - [Untitled]

Asynch Pin / Register Actions Advanced Pin / Register Clock Stimulus Register I

Fire	Pin / SFR	Action	Width	Units	Comments / Message
>	RA0	Toggle			

Watch

Add SFR TRISB Add Symbol _CP_OFF

Update	Address	Symbol Name	Value	Hex	Decimal	Binary
	03	STATUS	0x1C	0x1C	28	00011100
	05	PORTA	0x01	0x01	1	00000001
	06	PORTB	0x01	0x01	1	00000001
	85	TRISA	0x1F	0x1F	31	00011111
	86	TRISB	0x00	0x00	0	00000000

Watch 1 Watch 2 Watch 3 Watch 4

PLAB SIM

Stimulus Toggle RA0 fired.

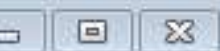


Debug



70

Checksum: 0xdaa4



C:\...\pressButton.asm

```

1      #INCLUDE <P16F84A.INC>
2      __CONFIG _CP_OFF&_PWRTE_ON&_WDI_OFF&_XT_OSC
3
4      ORG      0x00          ;Set Program Counter to hex 0
5      BSF      STATUS,RP0    ;Select Bank 1
6      CLRF     TRISB
7
8      TEST     BTFSC         PORTA,RA0
9      GOTO     OFF
10     BSF      PORTB,RB0
11     GOTO     TEST
12     OFF      BCF          PORTB,RB0
13     GOTO     TEST
14     END
    
```

Stimulus - [Untitled]

Asynch

Pin / Register Actions

Advanced Pin / Register

Clock Stimulus

Register I

Fire	Pin / SFR	Action	Width	Units	Comments / Message
>	RA0	Toggle			

Watch

Add SFR

TRISB

Add Symbol

_CP_OFF

Update	Address	Symbol Name	Value	Hex	Decimal	Binary
	03	STATUS	0x1C	0x1C	28	00011100
	05	PORTA	0x01	0x01	1	00000001
	06	PORTB	0x00	0x00	0	00000000
	85	TRISA	0x1F	0x1F	31	00011111
	86	TRISB	0x00	0x00	0	00000000

Watch 1

Watch 2

Watch 3

Watch 4

PLAB SIM

Stimulus Toggle RA0 fired.

69

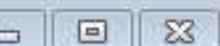


Debug

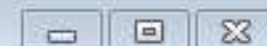


71

Checksum: 0xdaa4



C:\...\pressButton.asm



```

1      #INCLUDE <P16F84A.INC>
2      __CONFIG __CP_OFF&_PWRTE_ON&_WDI_OFF&_XT_OSC
3
4      ORG      0x00      ;Set Program Counter to hex 0
5      BSF      STATUS,RP0 ;Select Bank 1
6      CLRF     TRISB
7
8      TEST     BTFSC    PORTA,RA0
9      GOTO     OFF
10     BSF      PORTB,RB0
11     GOTO     TEST
12     OFF      BCF      PORTB,RB0
13     GOTO     TEST
14     END
    
```

Stimulus - [Untitled]

Asynch Pin / Register Actions Advanced Pin / Register Clock Stimulus Register I

Fire	Pin / SFR	Action	Width	Units	Comments / Message
>	RA0	Toggle			

Watch

Add SFR TRISB Add Symbol _CP_OFF

Update	Address	Symbol Name	Value	Hex	Decimal	Binary
	03	STATUS	0x1C	0x1C	28	00011100
	05	PORTA	0x01	0x01	1	00000001
	06	PORTB	0x00	0x00	0	00000000
	85	TRISA	0x1F	0x1F	31	00011111
	86	TRISB	0x00	0x00	0	00000000

Watch 1 Watch 2 Watch 3 Watch 4

PLAB SIM

Stimulus Toggle RA0 fired.

72

ulus - [Untitled]

Programmer Tools Configure Window Help

Debug

Checksum: 0xdaa4

C:\...\pressButton.asm

```
1      #INCLUDE <P16F84A.INC>
2      __CONFIG __CP_OFF&_PWRTE_ON&_WDI_OFF&_XT_OSC
3
4      ORG      0x00      ;Set Program Counter to hex 0
5      BSF      STATUS,RP0 ;Select Bank 1
6      CLRF     TRISB
```

MPLAB IDE

Do you wish to save the workspace before closing?

Sim Não Cancelar

73

Stimulus Toggle RA0 fired.

Update	Address	Symbol Name	Value	Hex	Decimal	Binary
	03	STATUS	0x1C	0x1C	28	00011100
	05	PORTA	0x01	0x01	1	00000001
	06	PORTB	0x00	0x00	0	00000000
	85	TRISA	0x1F	0x1F	31	00011111
	86	TRISB	0x00	0x00	0	00000000

Watch 1 Watch 2 Watch 3 Watch 4

6F84A pc:0x3 W:0 Z dc c 20 MHz bank 0

Debug

Checksum: 0xdaa4

C:\...\pressButton.asm

```

1      #INCLUDE <P16F84A.INC>
2      __CONFIG __CP_OFF&_PWRTE_ON&_WDI_OFF&_XT_OSC
3
4      ORG      0x00          ;Set Program Counter to hex 0
5      BSF      STATUS,RP0    ;Select Bank 1
6      CLRF     TRISB
    
```

Stimulus



Do you want to save the current stimulus workbook?

Sim

Não

74

PLAB SIM

Stimulus Toggle RA0 fired.

Update	Address	Symbol Name	Value	Hex	Decimal	Binary
	03	STATUS	0x1C	0x1C	28	00011100
	05	PORTA	0x01	0x01	1	00000001
	06	PORTB	0x00	0x00	0	00000000
	85	TRISA	0x1F	0x1F	31	00011111
	86	TRISB	0x00	0x00	0	00000000

Watch 1

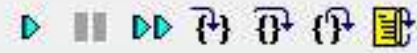
Watch 2

Watch 3

Watch 4



Debug



Checks

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Files

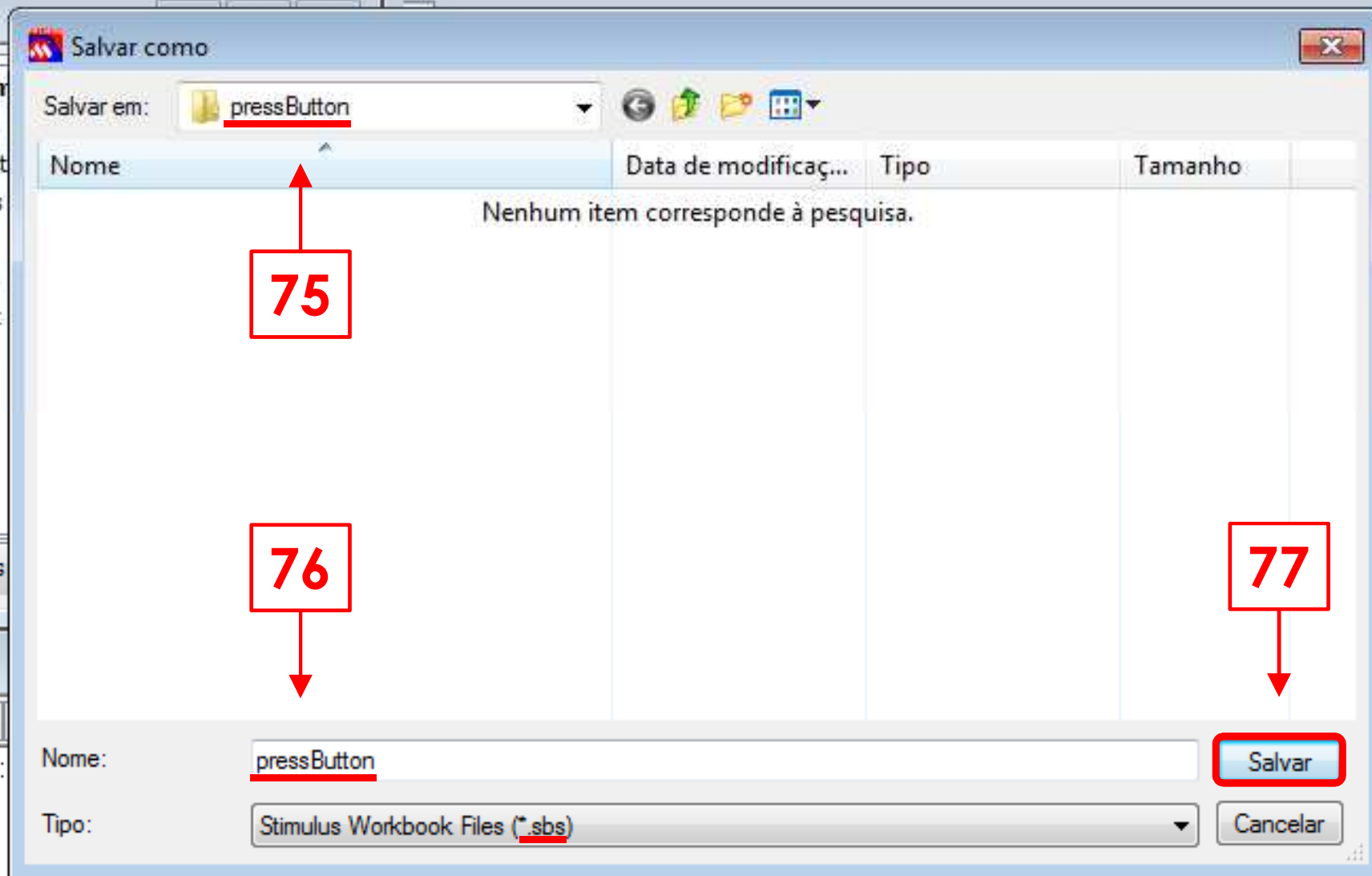
Files

Files

mbols

Control

Note:



Watch 1 Watch 2 Watch 3 Watch 4

PIC16F84A

pc:0x3

W:0

Z dc c

20 MHz bank 0