



3 Steps to complete Graphic Design

1. **MPLAB(X) template for new project
(Slide 2 – Slide 8)**
2. **VGDD code generation (Graphic Design)
(Slide 9 – Slide 28)**
3. **Code verification by MPLABX
(Slide 29 – Slide 33)**



Step 1 – MPLAB(X) template for new project

MPLAB X IDE v1.30

File Edit View Navigate Source Refactor Run Debug Team Tools Window Help

New Project... Ctrl+Shift+N
New File... Ctrl+N

Open Project... Ctrl+Shift+O
Open Recent Project

Import

Open Team Project...

Close Project
Close All Projects
Open File...
Open Recent File

Project Group

Project Properties

Save Ctrl+S
Save As...
Save All Ctrl+Shift+S

Page Setup...
Print... Ctrl+Alt+Shift+P
Print to HTML...

Exit

<No Project Open>

Start Page

Learn & Discover

My MPLAB IDE

Getting Started

- Quick Start
- MPLAB IDE v8 Users - IMPORTANT
- Take a Tour
- Download Compilers and Assemblers
- Release Notes and Support Documentation

Demos & Tutorials

- Minute Videos
- Differences from MPLAB 8
- All Tutorials >>

Communi

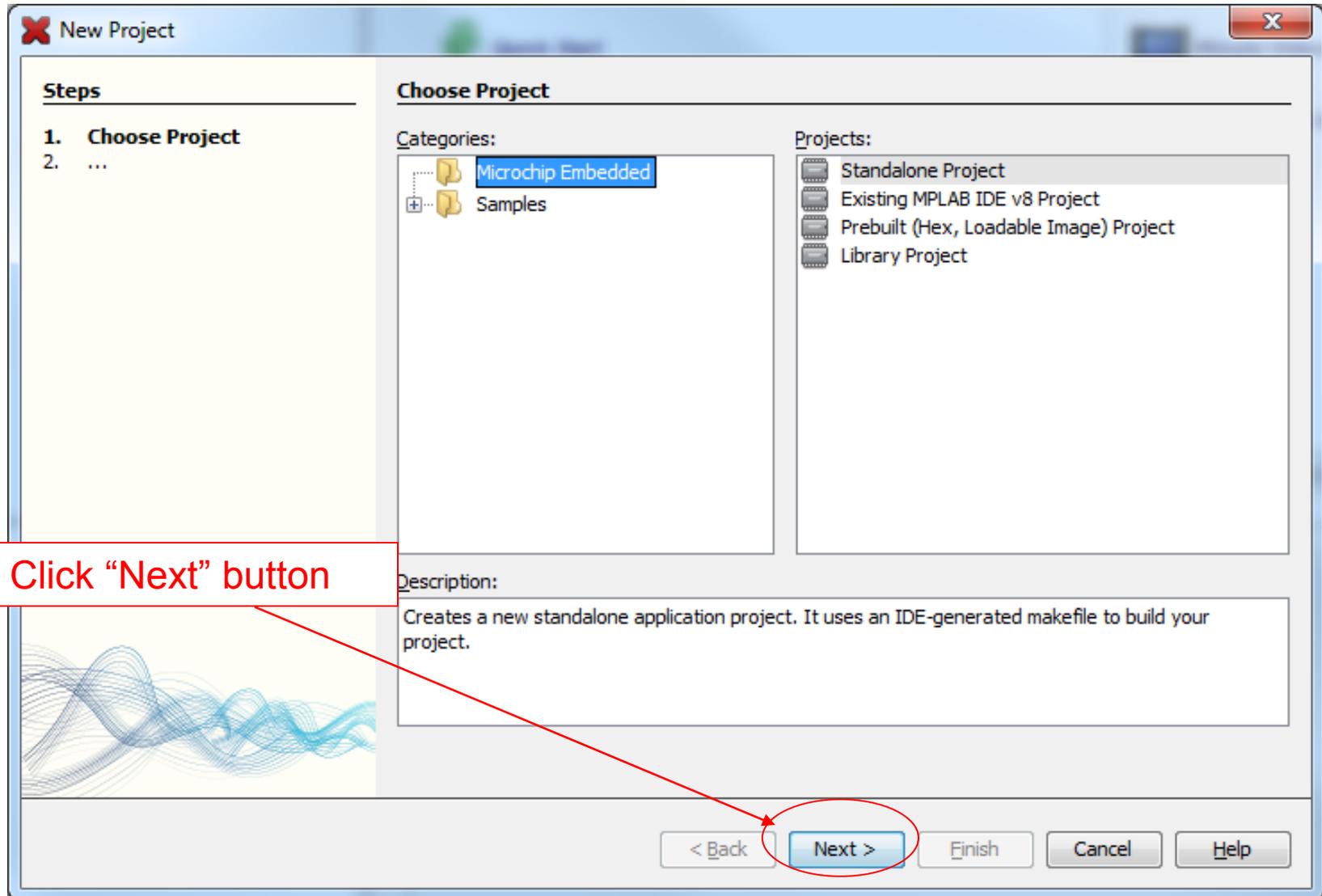
- Foru
- MPL
- MPL

Output

Select New Project

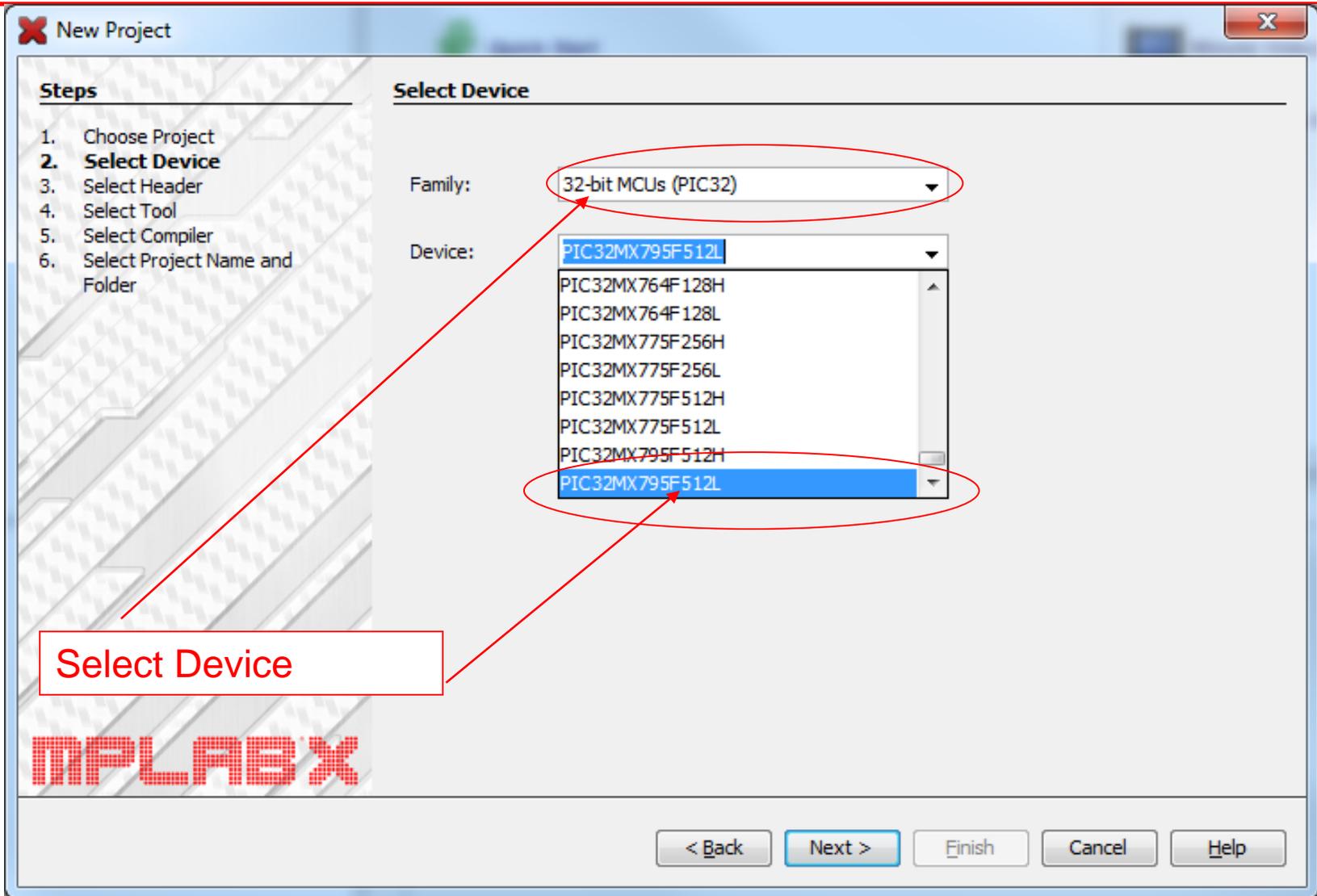


Step 1 – MPLAB(X) template for new project

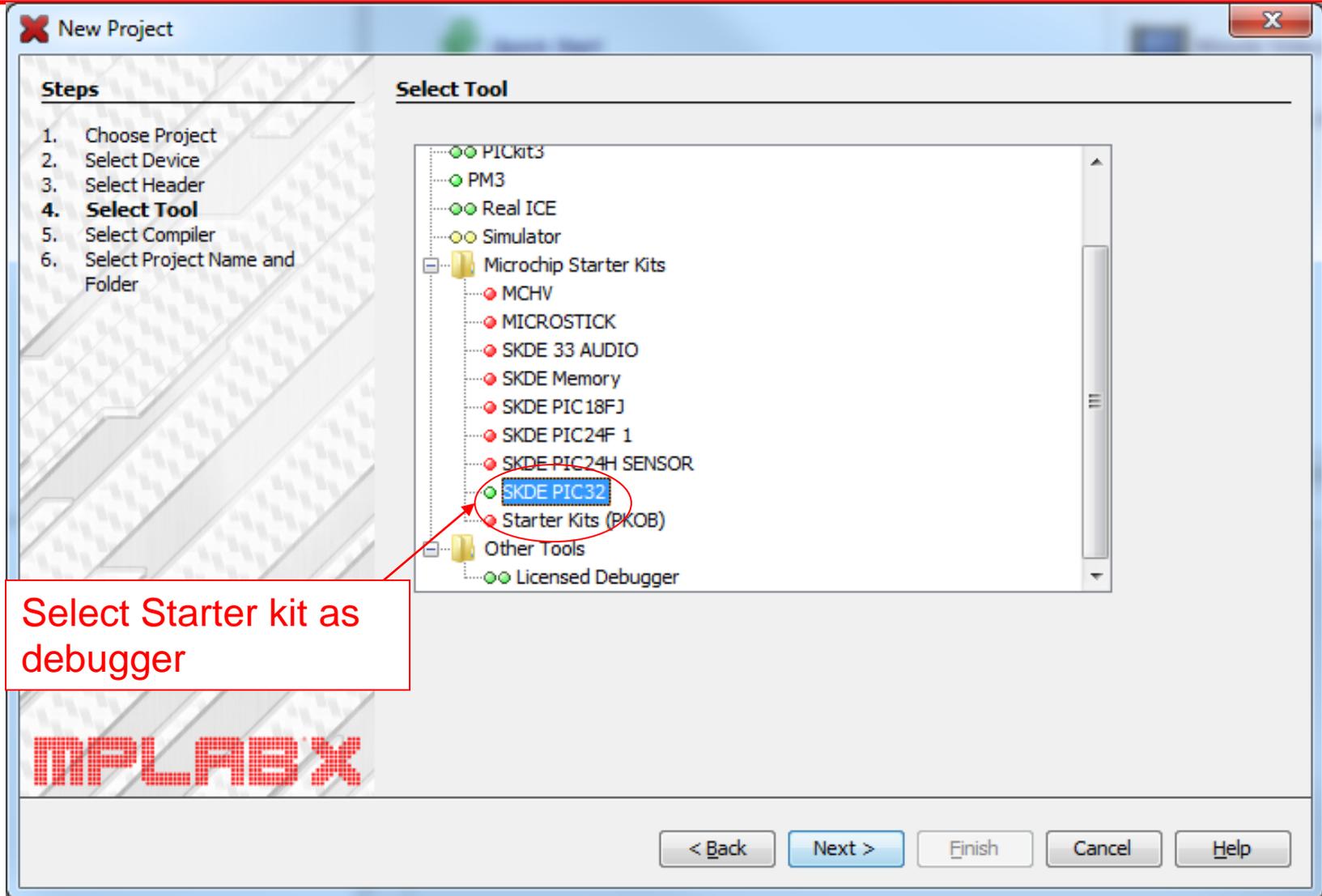




Step 1 – MPLAB(X) template for new project



Step 1 – MPLAB(X) template for new project



Steps

1. Choose Project
2. Select Device
3. Select Header
- 4. Select Tool**
5. Select Compiler
6. Select Project Name and Folder

Select Tool

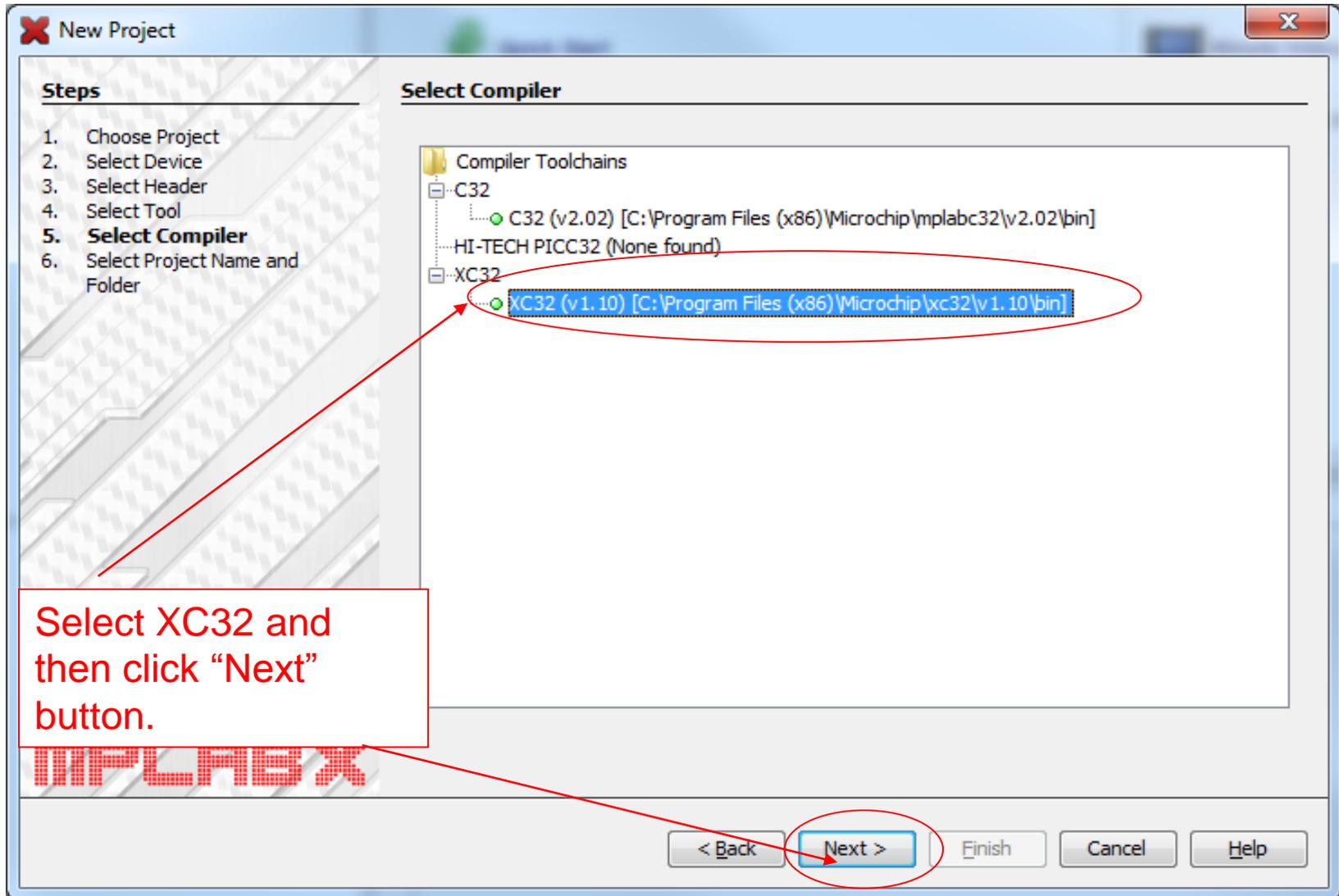
- PICkit3
- PM3
- Real ICE
- Simulator
- Microchip Starter Kits
 - MCHV
 - MICROSTICK
 - SKDE 33 AUDIO
 - SKDE Memory
 - SKDE PIC18FJ
 - SKDE PIC24F 1
 - SKDE PIC24H SENSOR
 - SKDE PIC32**
 - Starter Kits (PKOB)
- Other Tools
 - Licensed Debugger

Select Starter kit as debugger

MPLAB X

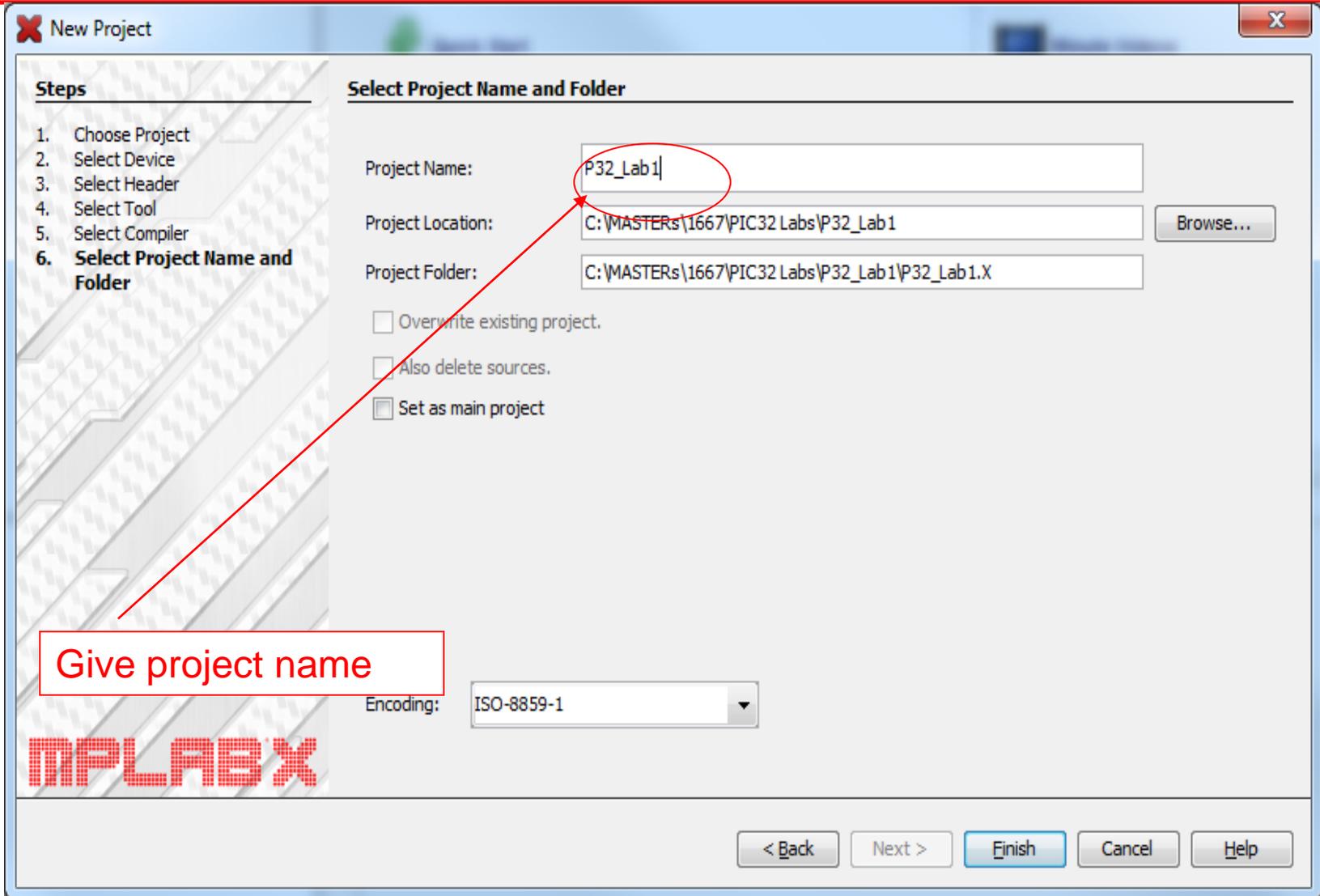
< Back Next > Finish Cancel Help

Step 1 – MPLAB(X) template for new project



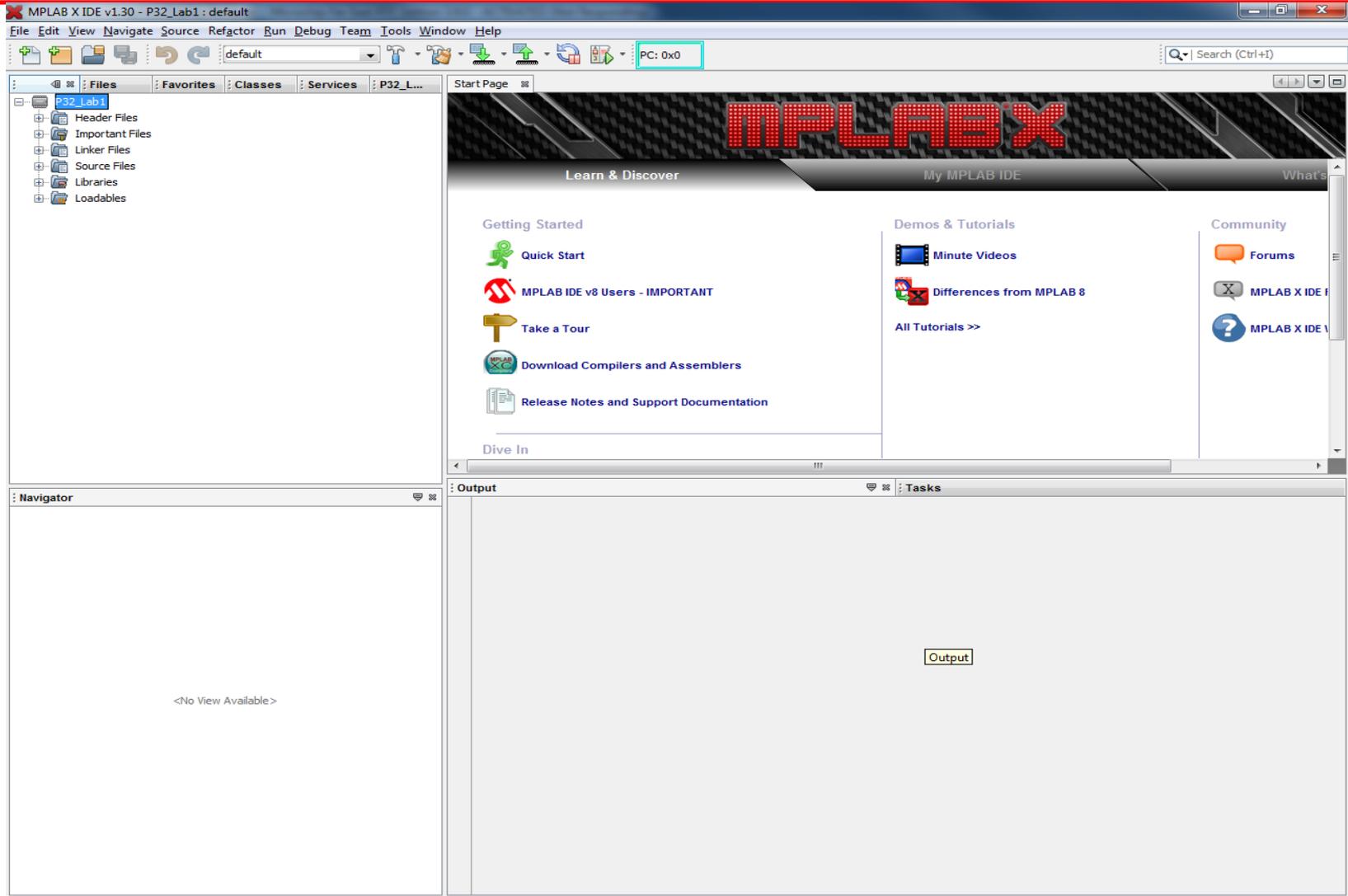


Step 1 – MPLAB(X) template for new project

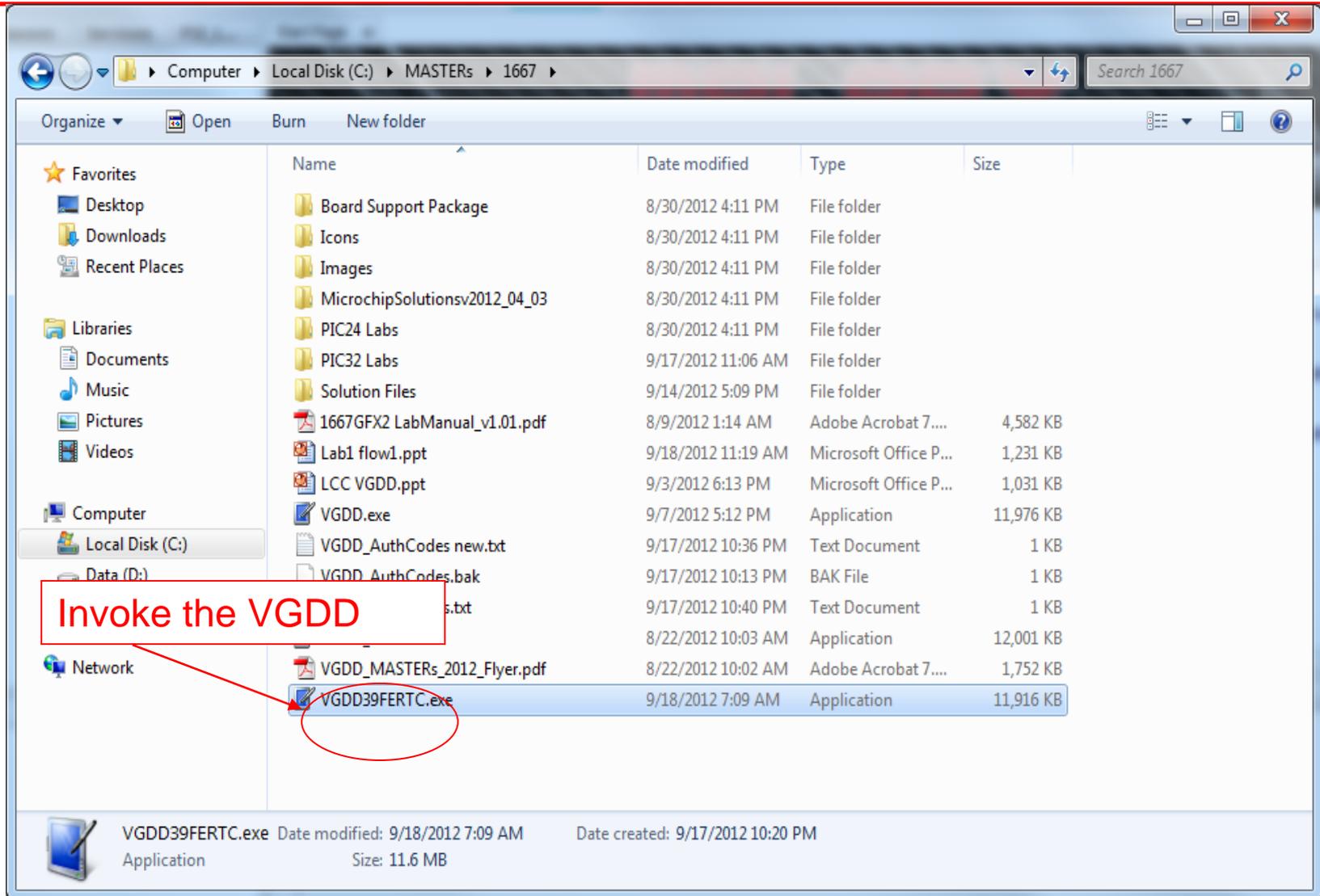




Step 1 – MPLAB(X) template for new project



Step 2 – VGDD Code Generation



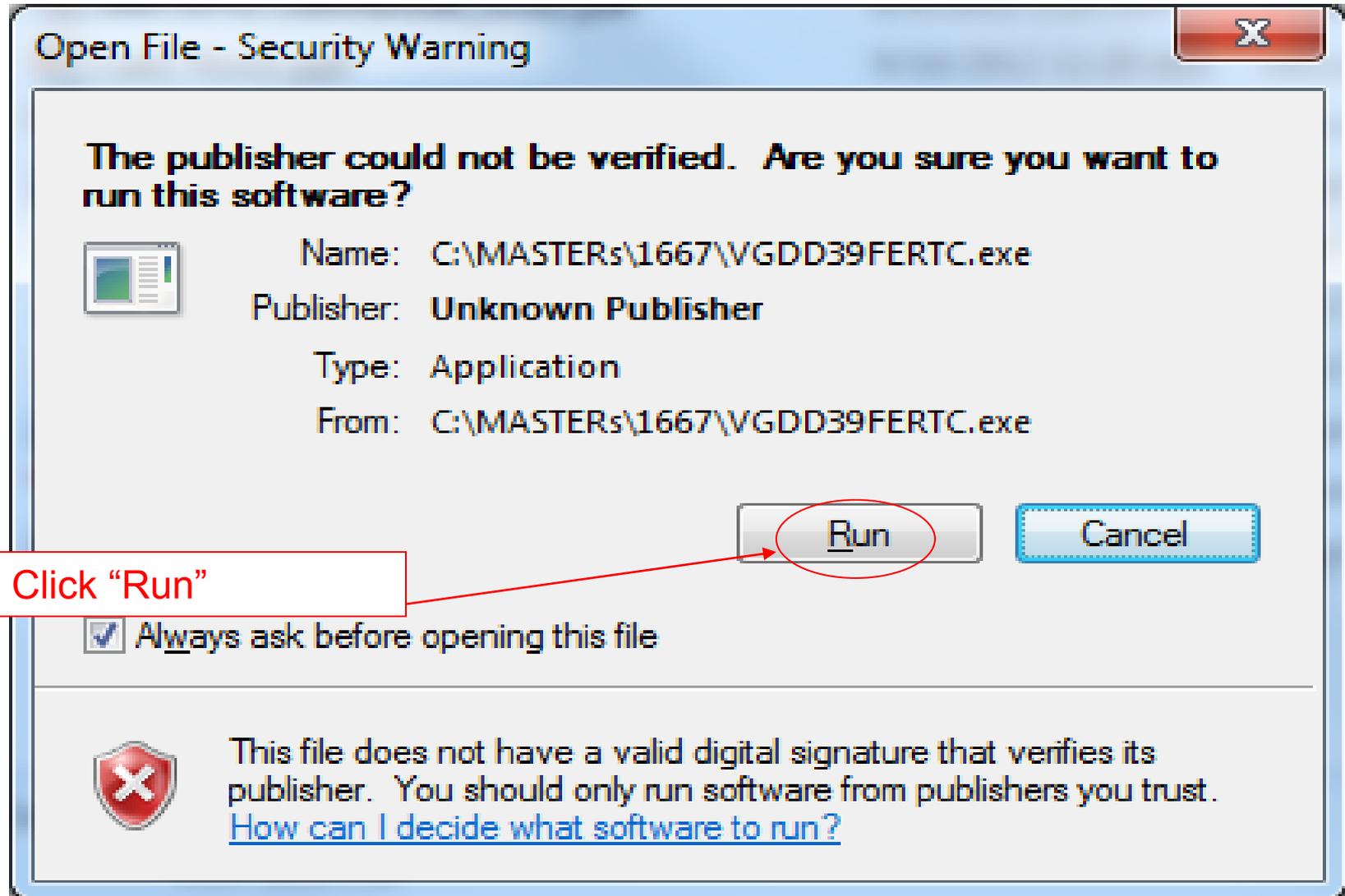
Computer > Local Disk (C:) > MASTERS > 1667

Name	Date modified	Type	Size
Board Support Package	8/30/2012 4:11 PM	File folder	
Icons	8/30/2012 4:11 PM	File folder	
Images	8/30/2012 4:11 PM	File folder	
MicrochipSolutionsv2012_04_03	8/30/2012 4:11 PM	File folder	
PIC24 Labs	8/30/2012 4:11 PM	File folder	
PIC32 Labs	9/17/2012 11:06 AM	File folder	
Solution Files	9/14/2012 5:09 PM	File folder	
1667GFX2 LabManual_v1.01.pdf	8/9/2012 1:14 AM	Adobe Acrobat 7...	4,582 KB
Lab1 flow1.ppt	9/18/2012 11:19 AM	Microsoft Office P...	1,231 KB
LCC VGDD.ppt	9/3/2012 6:13 PM	Microsoft Office P...	1,031 KB
VGDD.exe	9/7/2012 5:12 PM	Application	11,976 KB
VGDD_AuthCodes new.txt	9/17/2012 10:36 PM	Text Document	1 KB
VGDD_AuthCodes.bak	9/17/2012 10:13 PM	BAK File	1 KB
VGDD_AuthCodes.txt	9/17/2012 10:40 PM	Text Document	1 KB
VGDD39FERTC.exe	9/18/2012 7:09 AM	Application	11,916 KB
VGDD_MASTERS_2012_Flyer.pdf	8/22/2012 10:02 AM	Adobe Acrobat 7...	1,752 KB

Invoke the VGDD

VGDD39FERTC.exe Date modified: 9/18/2012 7:09 AM Date created: 9/17/2012 10:20 PM
Application Size: 11.6 MB

Step 2 – VGDD Code Generation

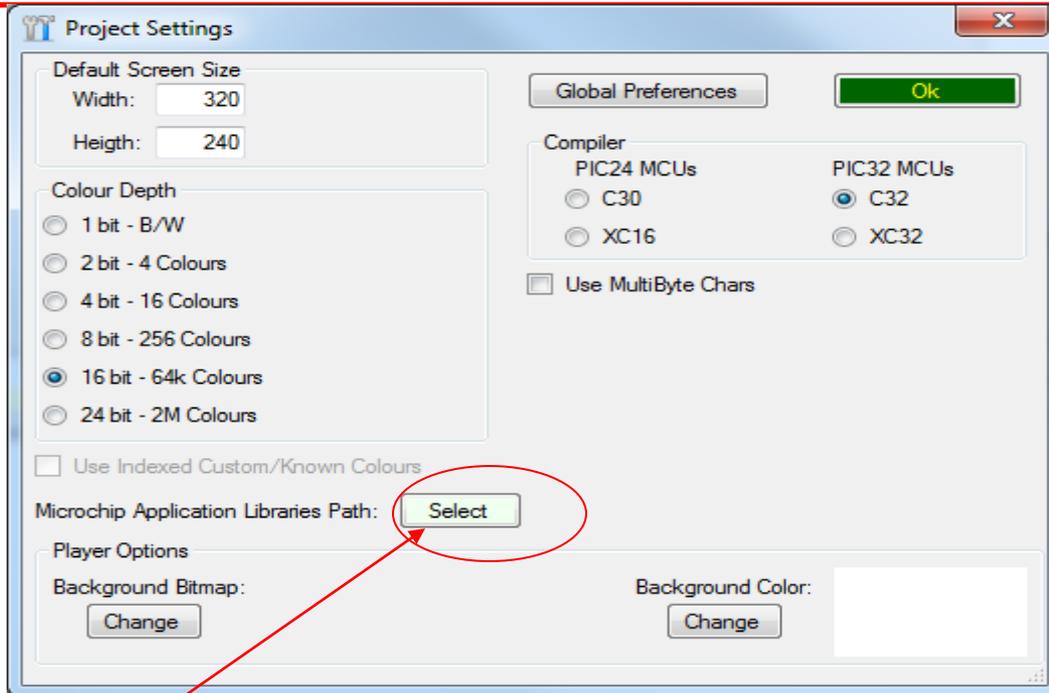




Step 2 – VGDD Code Generation

The screenshot shows the VGDD - Visual Graphics Display Designer - Microchip Far East RTC Edition 3.9.0 - ACTIVATED window. The interface includes a menu bar (File, Edit, Tools, Help), a toolbar, and several panels. The 'GOL Widgets' panel on the left lists various widget types such as <Pointer>, StaticText, Button, EditText, CheckBox, RadioButton, Window, GroupBox, ListBox, Picture, ProgressBar, RoundDial, Slider, Meter, and TextEntry. The 'GPL Controls' panel lists <Pointer>, OutTextXY, Arc, Circle, Line, Rectangle, Gradient, and PutImage. The 'Custom Widgets' panel lists <Pointer>, Grid, DigitalMeter, and AnalogClock. The 'External Widgets' panel lists <Pointer>, St, and Ale. The main workspace displays the 'VGDD' logo and a 'Project Explorer' panel with a 'New' project. A red circle highlights the 'New Project' button in the toolbar, and a red callout box points to it with the text 'Start with the new Project'. Other panels include 'Widget', 'Events', and 'Schemes'.

Step 2 – VGDD Code Generation



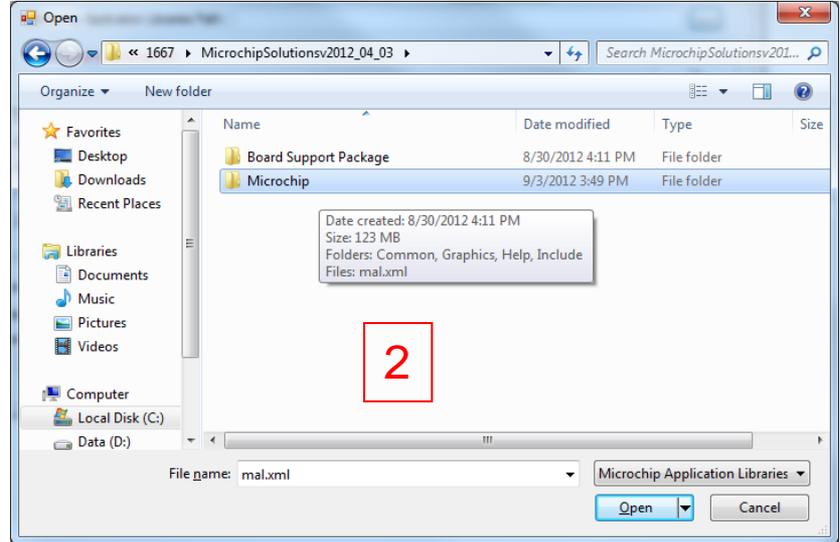
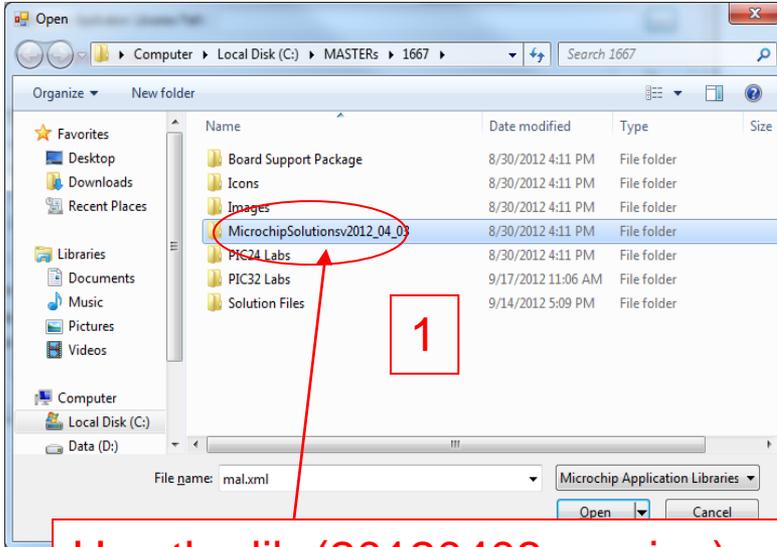
Click "Select" button to setup the Microchip Application lib path for new project



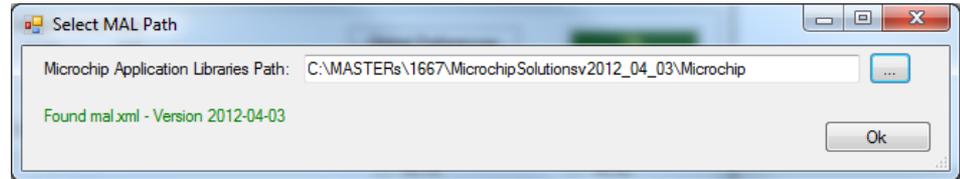
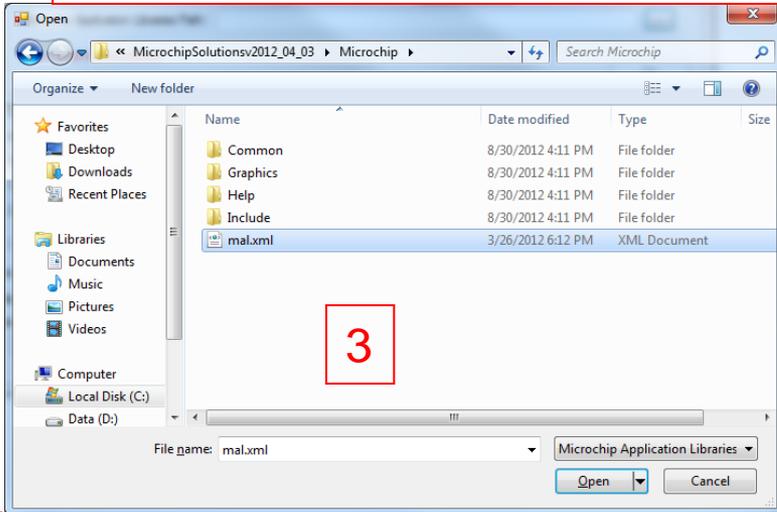
Explore the lib path



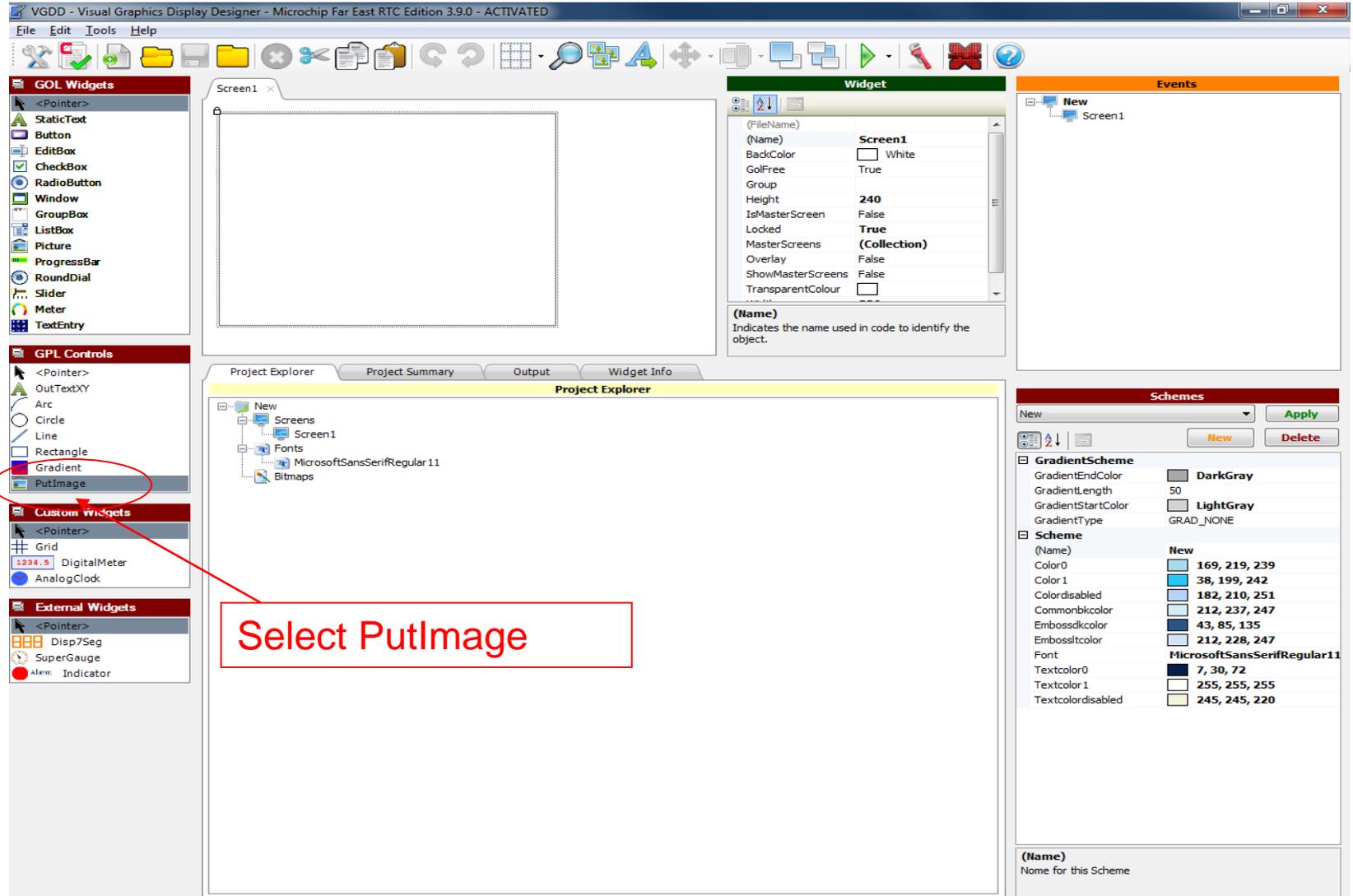
Step 2 – VGDD Code Generation



Use the lib (20120403 version)

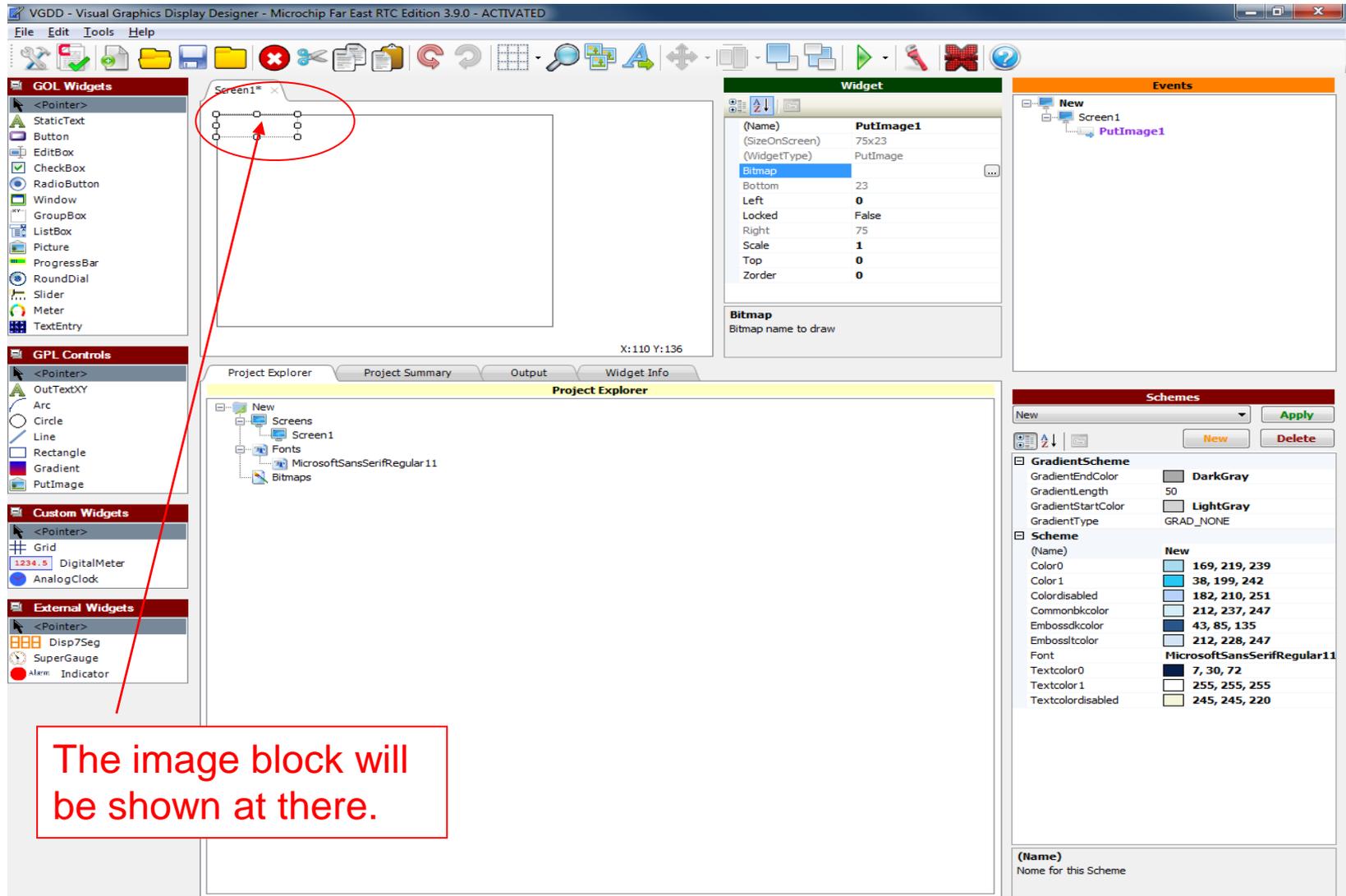


Step 2 – VGDD Code Generation



Select PutImage

Step 2 – VGDD Code Generation



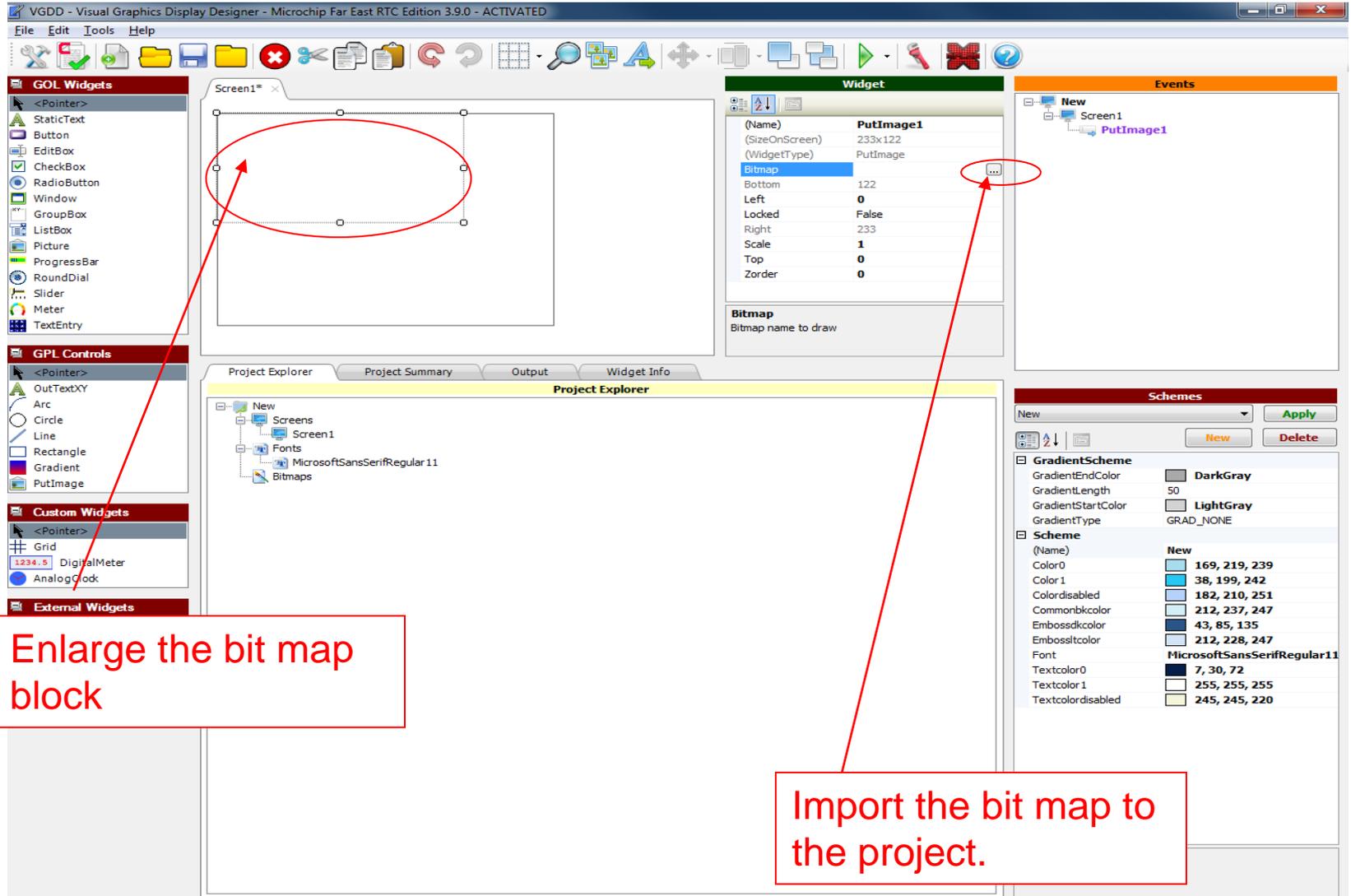
The screenshot shows the VGDD - Visual Graphics Display Designer interface. The main workspace displays a screen layout with a red circle highlighting a specific area. A red arrow points from a text box at the bottom to this area. The interface includes several panels:

- GOL Widgets:** A list of standard widgets such as Pointer, StaticText, Button, EditText, CheckBox, RadioButton, Window, GroupBox, ListBox, Picture, ProgressBar, RoundDial, Slider, Meter, and TextEntry.
- Widget:** A detailed configuration panel for the selected widget, showing properties like Name (PutImage1), SizeOnScreen (75x23), WidgetType (PutImage), and various position and scale settings.
- Events:** A panel for defining events and actions for the widget.
- Project Explorer:** A tree view showing the project structure, including Screens, Screen1, Fonts, and Bitmaps.
- Schemes:** A panel for configuring the visual scheme, including GradientScheme and Scheme settings like colors, fonts, and text colors.

The text box at the bottom contains the following text:

The image block will be shown at there.

Step 2 – VGDD Code Generation



Enlarge the bit map block

Import the bit map to the project.

Widget Panel:

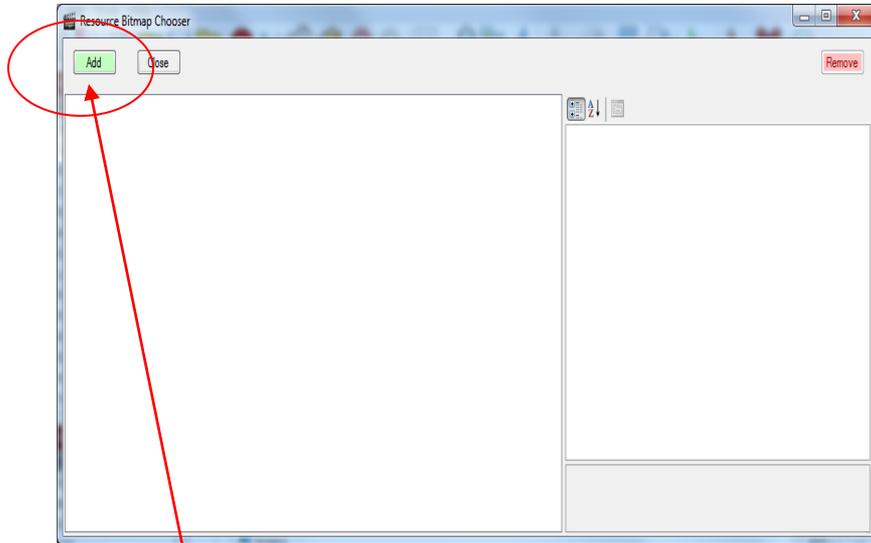
(Name)	PutImage1
(SizeOnScreen)	233x122
(WidgetType)	PutImage
Bitmap	...
Bottom	122
Left	0
Locked	False
Right	233
Scale	1
Top	0
Zorder	0

Project Explorer:

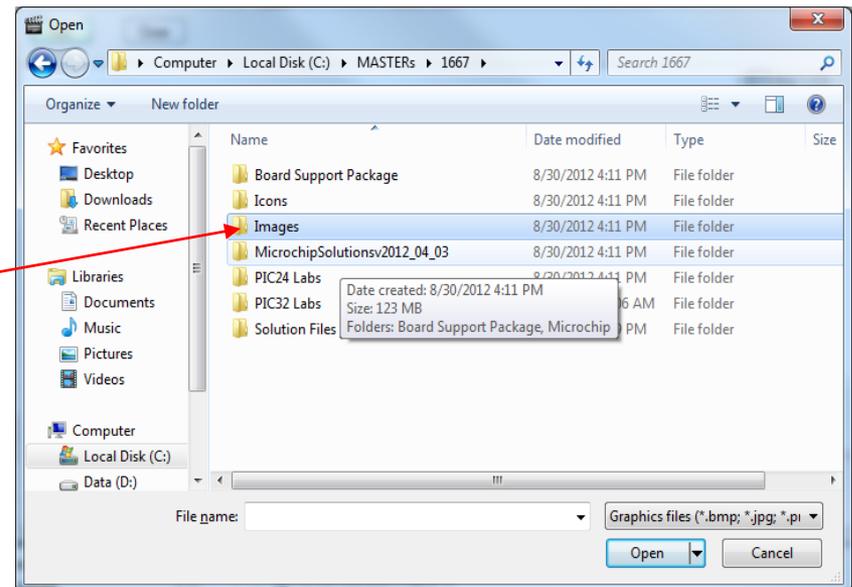
- New
 - Screens
 - Screen1
 - Fonts
 - MicrosoftSansSerifRegular11
 - Bitmaps



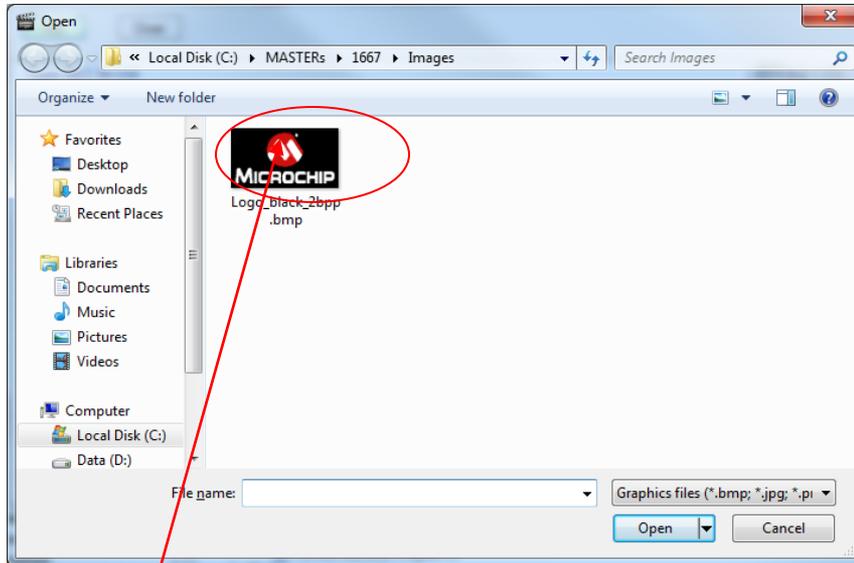
Step 2 – VGDD Code Generation



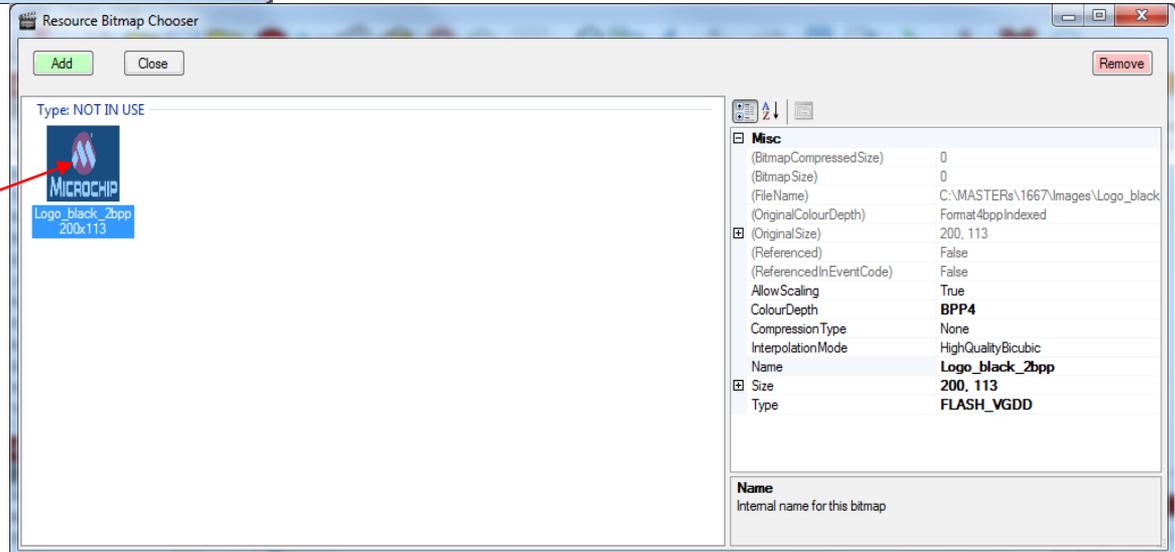
Click "Add" button.
Explore the bitmap (jpg)
inside Images folder



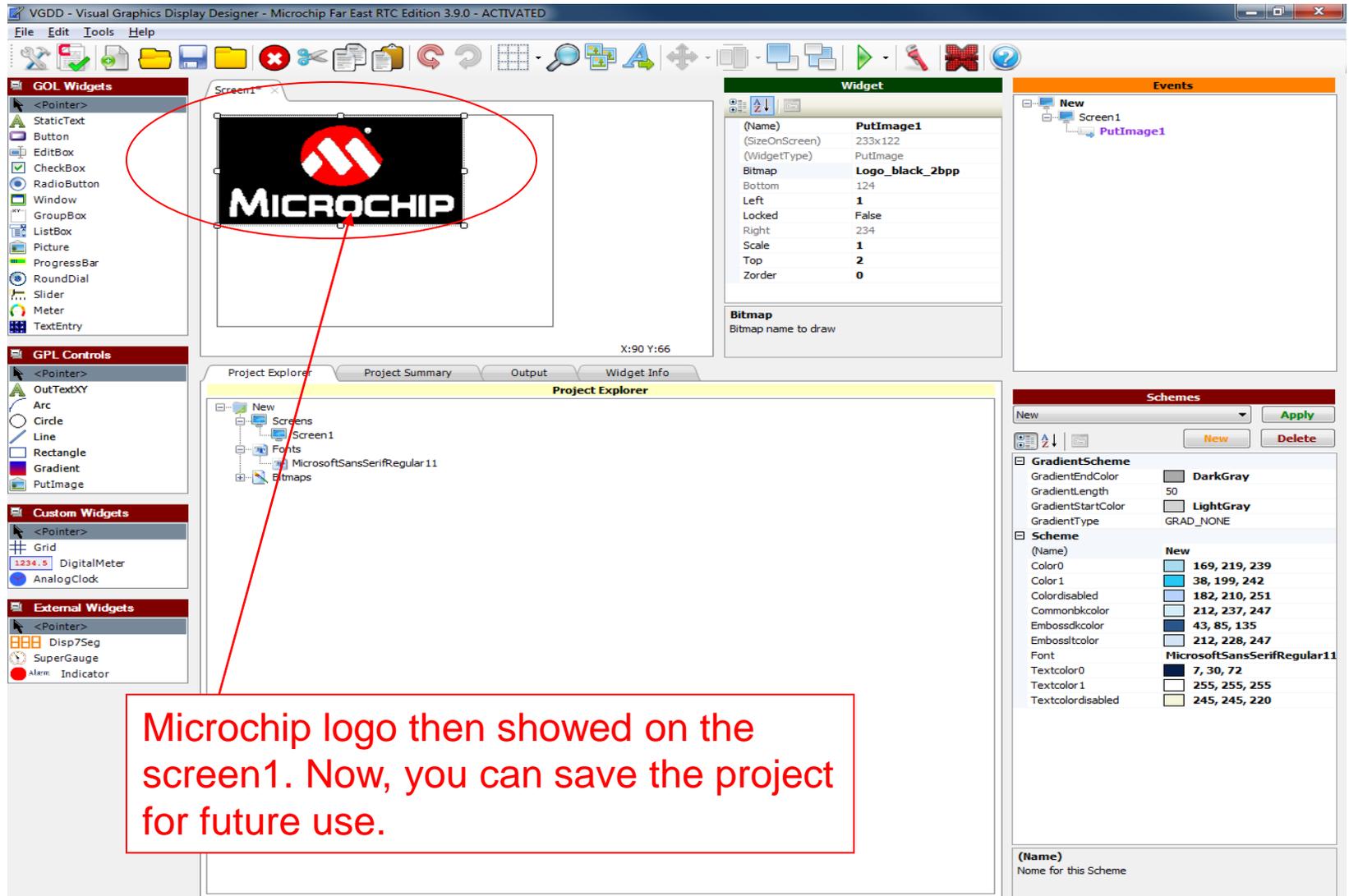
Step 2 – VGDD Code Generation



Select the Microchip logo. Then, double click the logo icon



Step 2 – VGDD Code Generation



Widget

(Name)	PutImage1
(SizeOnScreen)	233x122
(WidgetType)	PutImage
Bitmap	Logo_black_2bpp
Bottom	124
Left	1
Locked	False
Right	234
Scale	1
Top	2
Zorder	0

Bitmap
Bitmap name to draw

Schemes

GradientScheme

GradientEndColor	DarkGray
GradientLength	50
GradientStartColor	LightGray
GradientType	GRAD_NONE

Scheme

(Name)	New
Color0	169, 219, 239
Color1	38, 199, 242
ColorDisabled	182, 210, 251
Commonbkcolor	212, 237, 247
Embossdkcolor	43, 85, 135
Embossltcolor	212, 228, 247
Font	MicrosoftSansSerifRegular11
Textcolor0	7, 30, 72
Textcolor1	255, 255, 255
TextcolorDisabled	245, 245, 220

(Name)
None for this Scheme

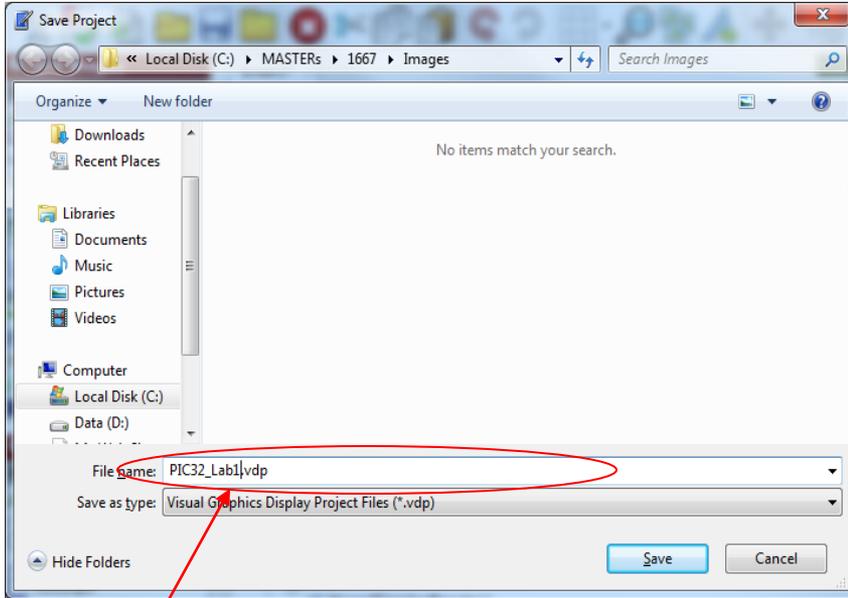
Project Explorer

- New
 - Screens
 - Screen1
 - Fonts
 - MicrosoftSansSerifRegular11
 - Bitmaps

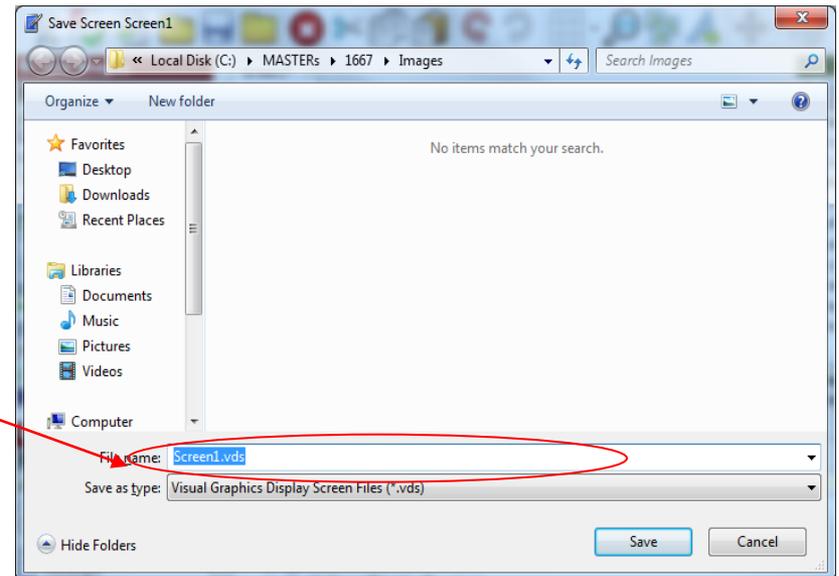
Microchip logo then showed on the screen1. Now, you can save the project for future use.



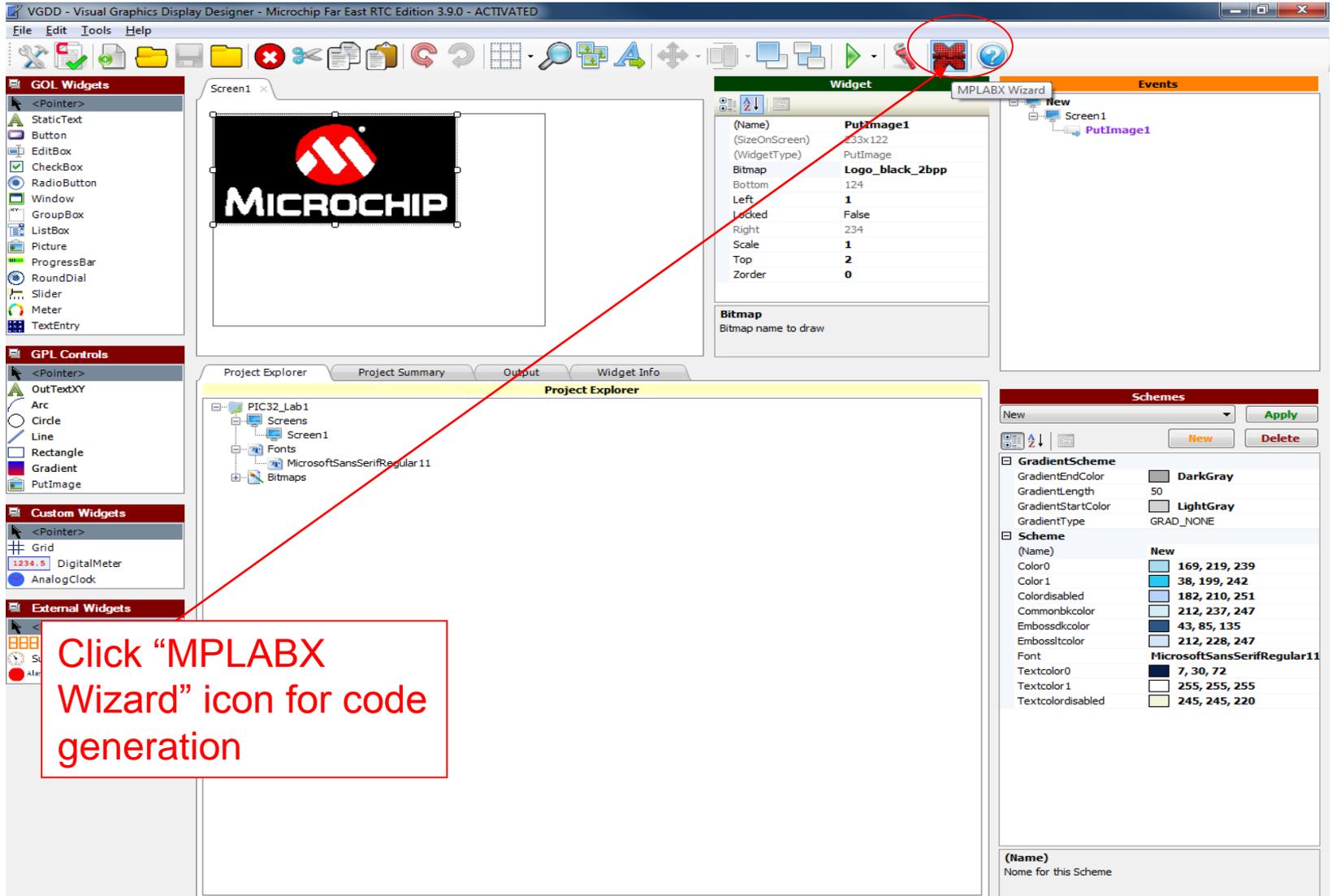
Step 2 – VGDD Code Generation



Save the Project



Step 2 – VGDD Code Generation



VGDD - Visual Graphics Display Designer - Microchip Far East RTC Edition 3.9.0 - ACTIVATED

File Edit Tools Help

GOL Widgets

- <Pointer>
- StaticText
- Button
- EditBox
- CheckBox
- RadioButton
- Window
- GroupBox
- ListBox
- Picture
- ProgressBar
- RoundDial
- Slider
- Meter
- TextEntry

GPL Controls

- <Pointer>
- OutTextXY
- Arc
- Circle
- Line
- Rectangle
- Gradient
- PutImage

Custom Widgets

- <Pointer>
- Grid
- 1234.5 DigitalMeter
- AnalogClock

External Widgets

- <Pointer>
- S
- Alt

Screen1

Widget

(Name)	PutImage1
(SizeOnScreen)	253x122
(WidgetType)	PutImage
Bitmap	Logo_black_2bpp
Bottom	124
Left	1
Locked	False
Right	234
Scale	1
Top	2
Zorder	0

Events

New

- Screen1
- PutImage1

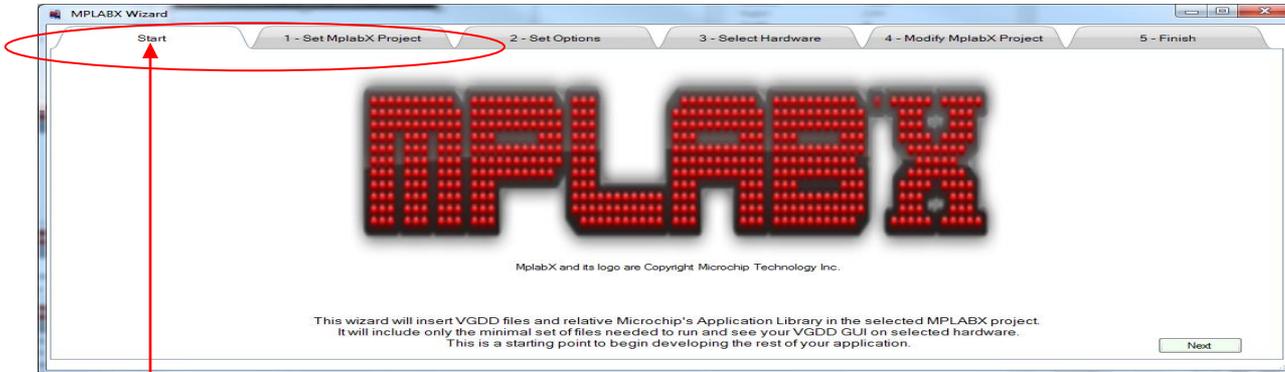
Project Explorer

- PIC32_Lab1
 - Screens
 - Screen1
 - Fonts
 - MicrosoftSansSerifRegular11
 - Bitmaps

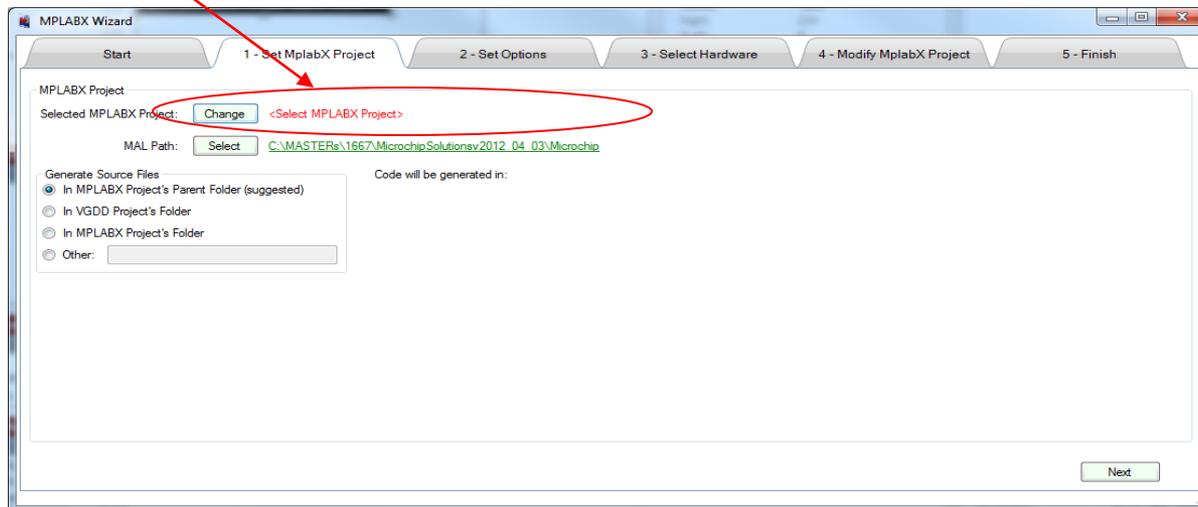
Click "MPLABX Wizard" icon for code generation



Step 2 – VGDD Code Generation

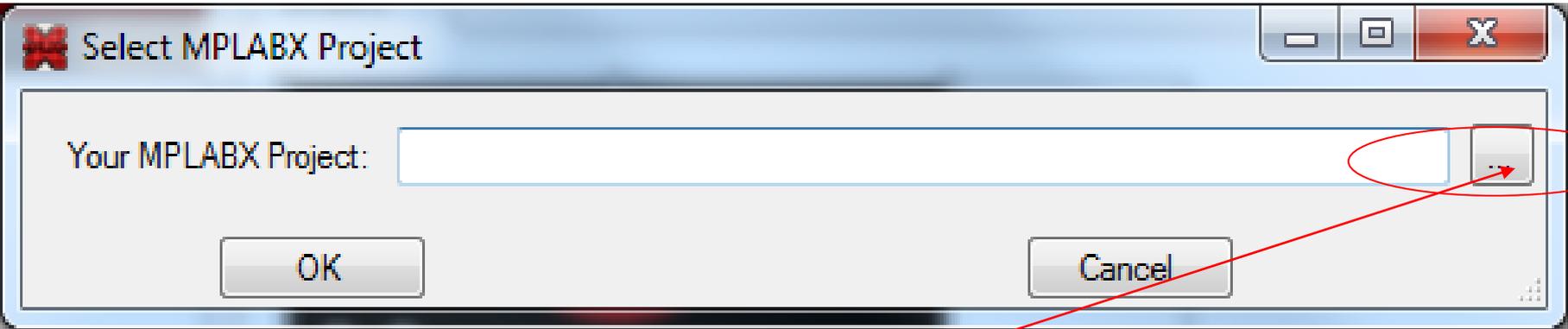


Start to setup the code at the project folder you want

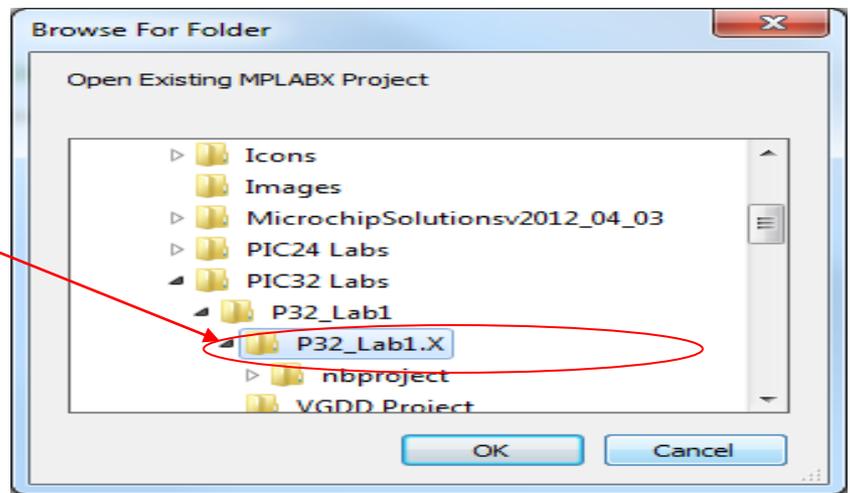




Step 2 – VGDD Code Generation

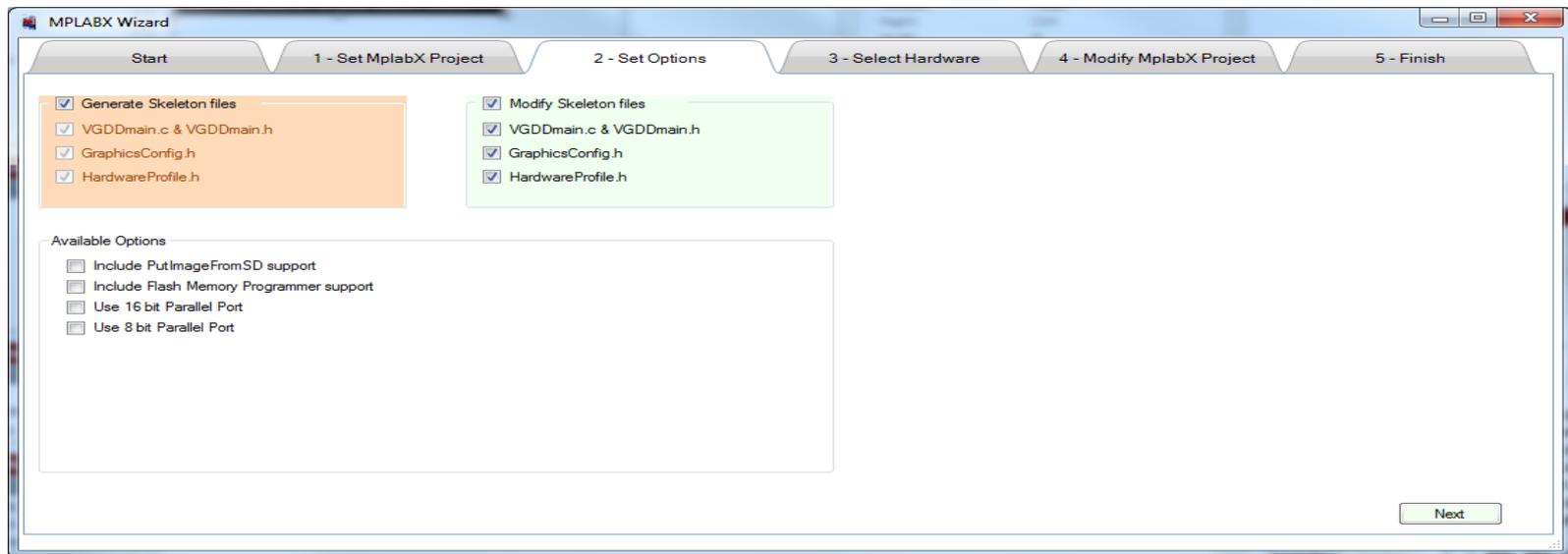
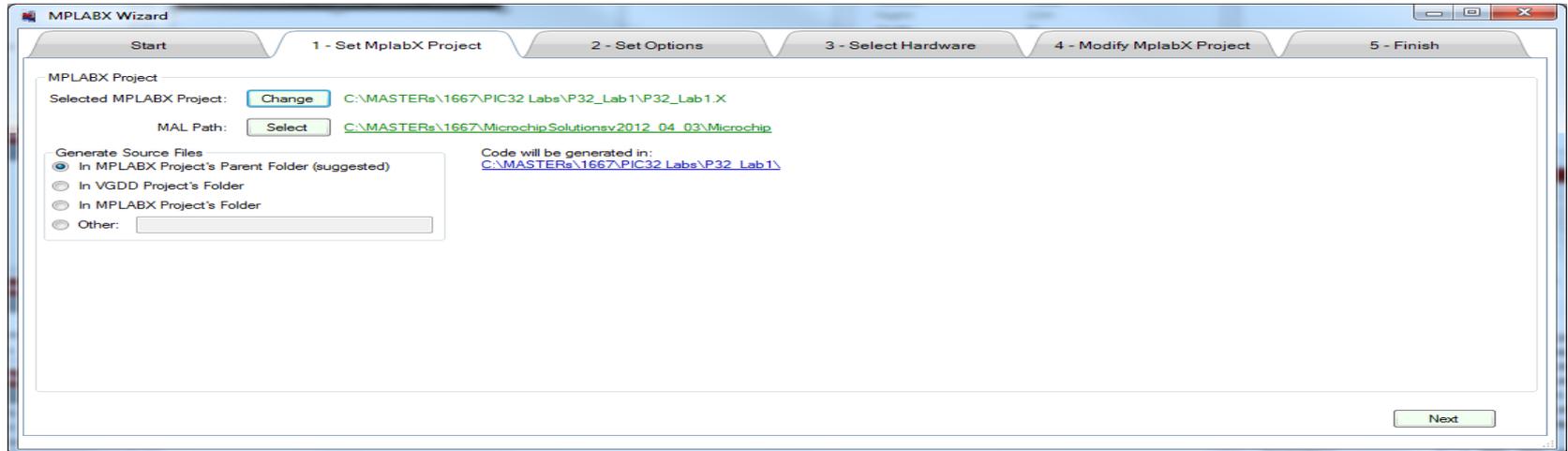


Explore MPLABX project (P32_Lab1.X), which was already made in Step 1.





Step 2 – VGDD Code Generation



Step 2 – VGDD Code Generation

MPLABX Wizard

Start 1 - Set MplabX Project 2 - Set Options 3 - Select Hardware 4 - Modify MplabX Project 5 - Finish

Development Board:

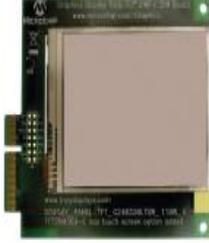
- Explorer 16 Development Board (DM240001)
- PIC24FJ256DA210 Development Board (DM240312)
- PIC32 Ethernet Starter Kit (DM320004)
- PIC32 USB Starter Kit II (DM320003-2)

Expansion Board:

- GFX PICtail Plus Epson S1D13517 Board (AC164127-7)
- GFX PICtail Plus SSD1926 Board (AC164127-5)
- Low-Cost Controllerless (LCC) Graphics PICtail Plus
- Multimedia Expansion Board (DM320005)

Display:

- MEB Integrated Display - Truly 3.2in. 320x240
- Graphics Display Powertip 4.3in. 480x272 Board
- Graphics Display Truly 3.2in. 320x240 Board
- Graphics Display Truly 7in. 800x480 Board (AC164127-9)



Display Orientation

0°

270° 90°

180°

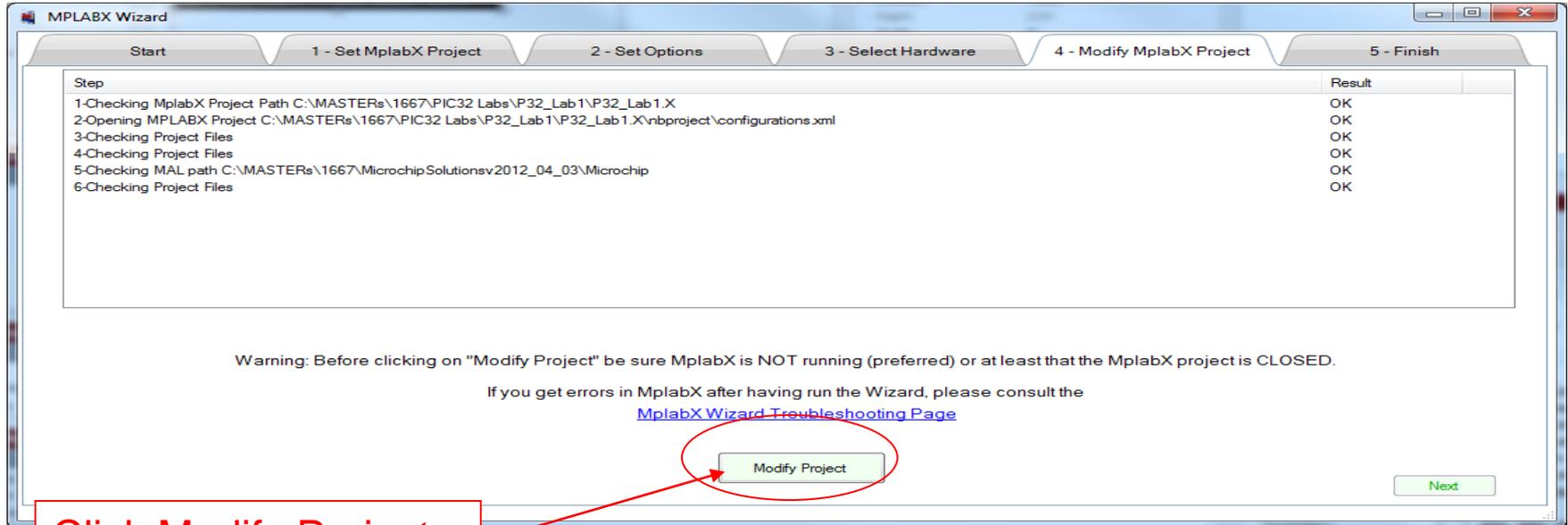
[Click here to open the Tested Hardware page](#)

Double click on images to open Internet Page

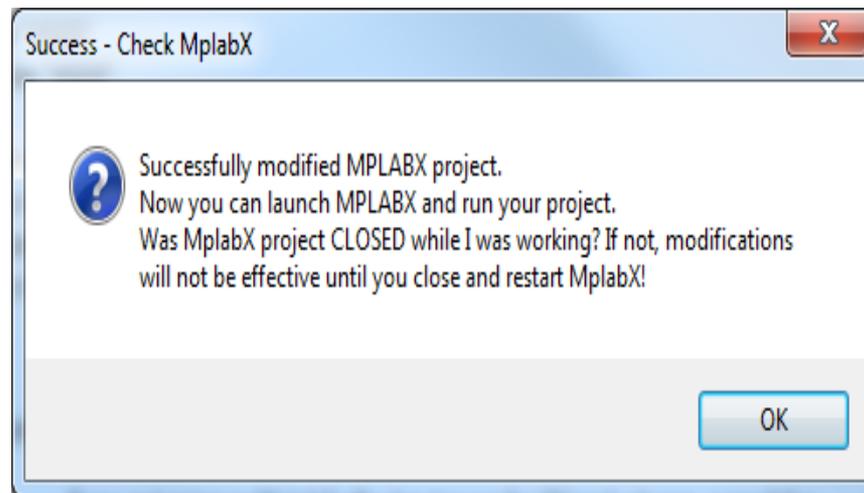
Next



Step 2 – VGDD Code Generation

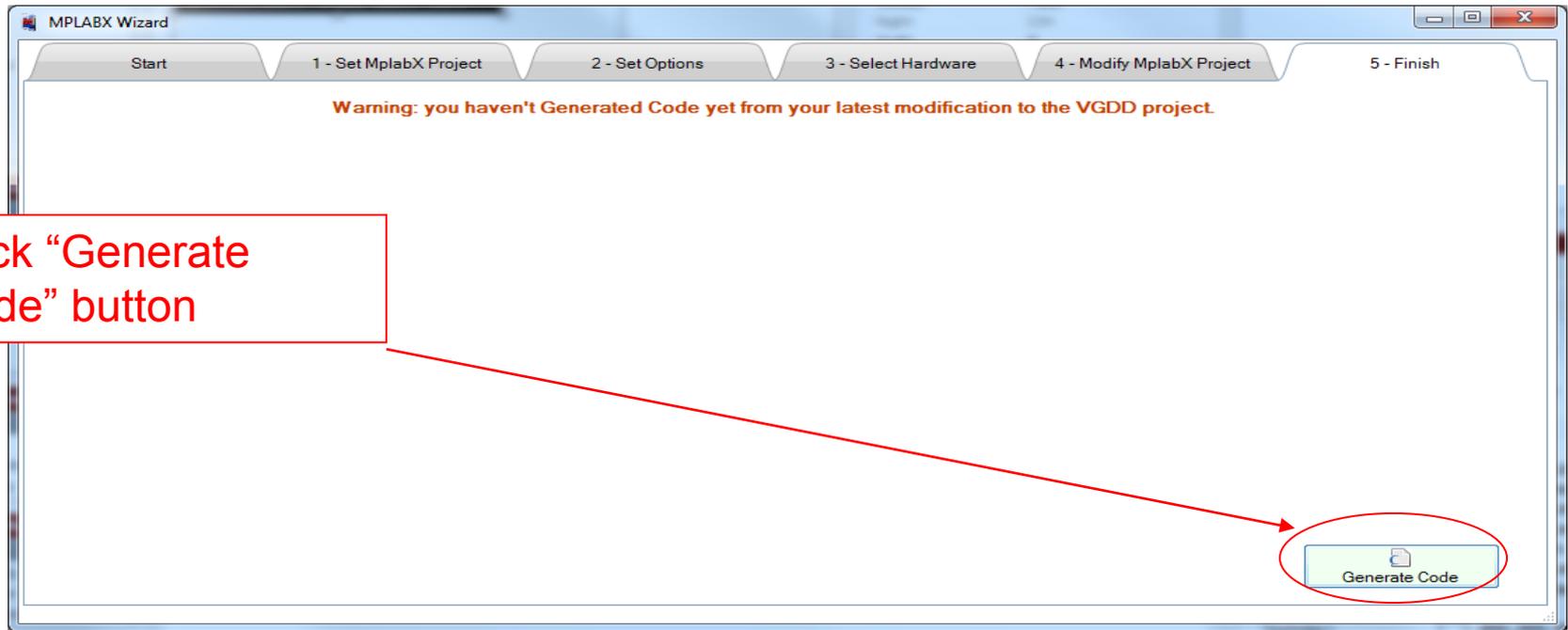


Click Modify Project

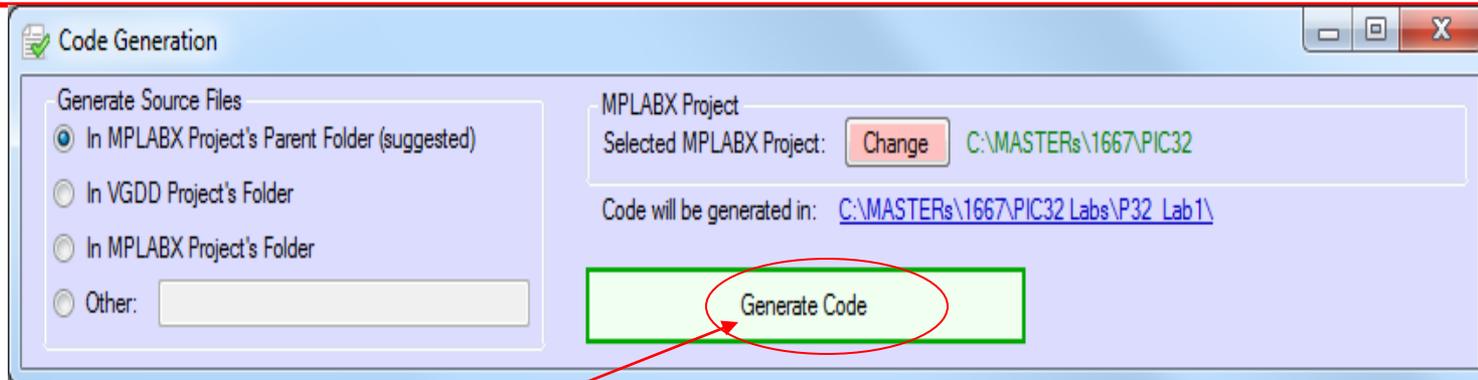




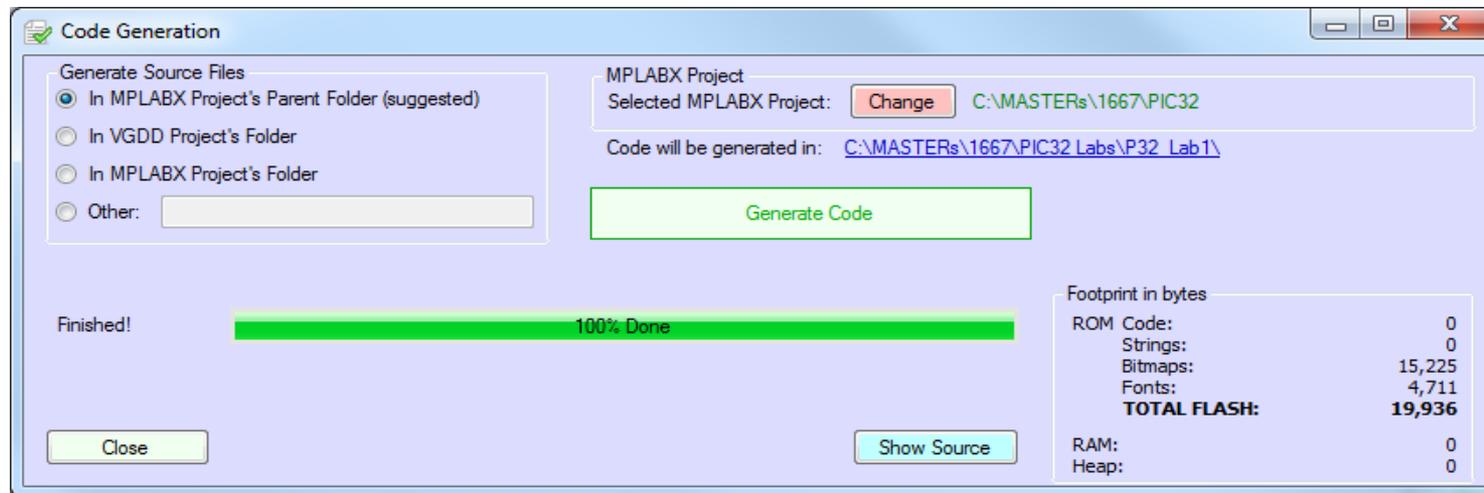
Step 2 – VGDD Code Generation



Step 2 – VGDD Code Generation



Click “Generate Code” button



Now, you can connect the dev tools hardware to PC as next page and go back to MPLABX PIC32 Lab1 project.

Step 3 – Code verification by MPLABX



Step 3 – Code verification by MPLABX





Step 3 – Code verification by MPLABX

The screenshot shows the MPLAB X IDE v1.30 interface. The menu bar includes File, Edit, View, Navigate, Source, Refactor, Run, Debug, Team, Tools, Window, and Help. The toolbar contains various icons, with the 'Make and Program Device' icon (a green play button with a red circle) circled in red. The main workspace displays the MPLABX logo and a 'Learn & Discover' section with links to 'Getting Started', 'Demos & Tutorials', and 'Communi...'. The 'Output - P32_Lab1 (Clean, Build, ...)' window shows the following text:

```
make[2]: Leaving directory `C:/MASTERS/1667/PIC32 Labs/P32_Lab1/P32_Lab1.X'
make[1]: Leaving directory `C:/MASTERS/1667/PIC32 Labs/P32_Lab1/P32_Lab1.X'

BUILD SUCCESSFUL (total time: 32s)
Loading code from C:/MASTERS/1667/PIC32 Labs/P32_Lab1/P32_Lab1.X/dist/default/production/P32_Lab1.X.productio
Loading symbols from C:/MASTERS/1667/PIC32 Labs/P32_Lab1/P32_Lab1.X/dist/default/production/P32_Lab1.X.prod
Configuration Bits: address 0x1FC02FF0: USERID = 65535 does not match any valid value in the device database.
Loading completed
```



Step 3 – Code verification by MPLABX

The screenshot shows the MPLAB X IDE v1.30 interface. The main window displays the MPLABX logo and navigation links. The Output window at the bottom shows the following text:

```
P32_Lab1 (Build, Load, ...) x Starter Kits x
"C:\Program Files (x86)\Microchip\xc32\v1.10\bin\xc32-gcc.exe" -g -x c -c -mprocessor=32MX795F512L -I... -I...
"C:\Program Files (x86)\Microchip\xc32\v1.10\bin\xc32-gcc.exe" -g -x c -c -mprocessor=32MX795F512L -I... -I...
"C:\Program Files (x86)\Microchip\xc32\v1.10\bin\xc32-gcc.exe" -g -x c -c -mprocessor=32MX795F512L -I... -I...
"C:\Program Files (x86)\Microchip\xc32\v1.10\bin\xc32-gcc.exe" -g -x c -c -mprocessor=32MX795F512L -I... -I...
"C:\Program Files (x86)\Microchip\xc32\v1.10\bin\xc32-gcc.exe" -g -x c -c -mprocessor=32MX795F512L -I... -I...
"C:\Program Files (x86)\Microchip\xc32\v1.10\bin\xc32-gcc.exe" -g -x c -c -mprocessor=32MX795F512L -I... -I...
"C:\Program Files (x86)\Microchip\xc32\v1.10\bin\xc32-gcc.exe" -g -x c -c -mprocessor=32MX795F512L -I... -I...
"C:\Program Files (x86)\Microchip\xc32\v1.10\bin\xc32-gcc.exe" -g -x c -c -mprocessor=32MX795F512L -I... -I...
"C:\Program Files (x86)\Microchip\xc32\v1.10\bin\xc32-gcc.exe" -mprocessor=32MX795F512L -o dist/default/p
"C:\Program Files (x86)\Microchip\xc32\v1.10\bin\...xc32-bin2hex dist/default/production/P32_Lab1.X.productio
make(2): Leaving directory `C:/MASTERS/1667/PIC32 Labs/P32_Lab1/P32_Lab1.X'
make(1): Leaving directory `C:/MASTERS/1667/PIC32 Labs/P32_Lab1/P32_Lab1.X'

BUILD SUCCESSFUL (total time: 29s)
Loading code from C:/MASTERS/1667/PIC32 Labs/P32_Lab1/P32_Lab1.X/dist/default/production/P32_Lab1.X.product1
Loading symbols from C:/MASTERS/1667/PIC32 Labs/P32_Lab1/P32_Lab1.X/dist/default/production/P32_Lab1.X.produ
Configuration Bits: address 0x1FC02FF0: USERID = 65535 does not match any valid value in the device database
Loading completed
Connecting to programmer...
Programming target...
Programming completed
Running target...
```

Now, the graphic design is done and you can see the result on next page.

Step 3 – Code verification by MPLABX



The End