



VGDD-Link

plug-in for MPLAB[®]X

User's Manual
Version 0.7

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Table of Contents

Overview.....	3
Requirements.....	3
Installing the Plug-in.....	4
Configuring the plug-in.....	7
Advanced configuration.....	8
Using the plug-in.....	8
Connecting to plug-in.....	10
Build Project.....	12

Overview

VGDD-Link is an addon for Microchip MPLAB®X IDE that connects VGDD - Visual Graphics Display Designer to MPLAB®X IDE via IPC (Inter-Process Communications) on a TCP/IP socket.

It allows VGDD and MPLAB®X IDE to interact in real time with each other in order to make the needed modifications to the current MPLAB®X project, like getting project's configuration, adding new files, change override options and so on.

When no VGDD-Link plug-in is installed or when it is stopped, any modification to the MPLAB®X project is done by VGDD by making direct modifications to the XML project file.

This technique, although functional, has two major issues:

- 1) MPLAB®X project can't be opened in the IDE while VGDD modifies it. MPLAB®X “shadows” the project file and in some situations modifications are lost or can't be seen;
- 2) Compatibility: should the project file structure change in the future, with new MPLAB®X releases, VGDD won't be able to comply to these modifications and would need a new, updated version. Meanwhile, project files could break if the wrong modification is done.

To address these limitations, the VGDD-Link plug-in has been created, and all Project manipulations are done via standard MPLAB®X IDE APIs (Application Programming Interfaces) by sending appropriate commands through a TCP/IP IPC.

Requirements

VGDD-Link is a NetBeans Version 8 plug-in. This means that it is compatible only with MPLAB®X with versions starting from v. 3.0

No backwards compatibility is available for MPLAB®X versions 2.x due to different Java APIs used in the new IDE.

The client part of the plug-in is integrated in VGDD starting from version 9.0.0.

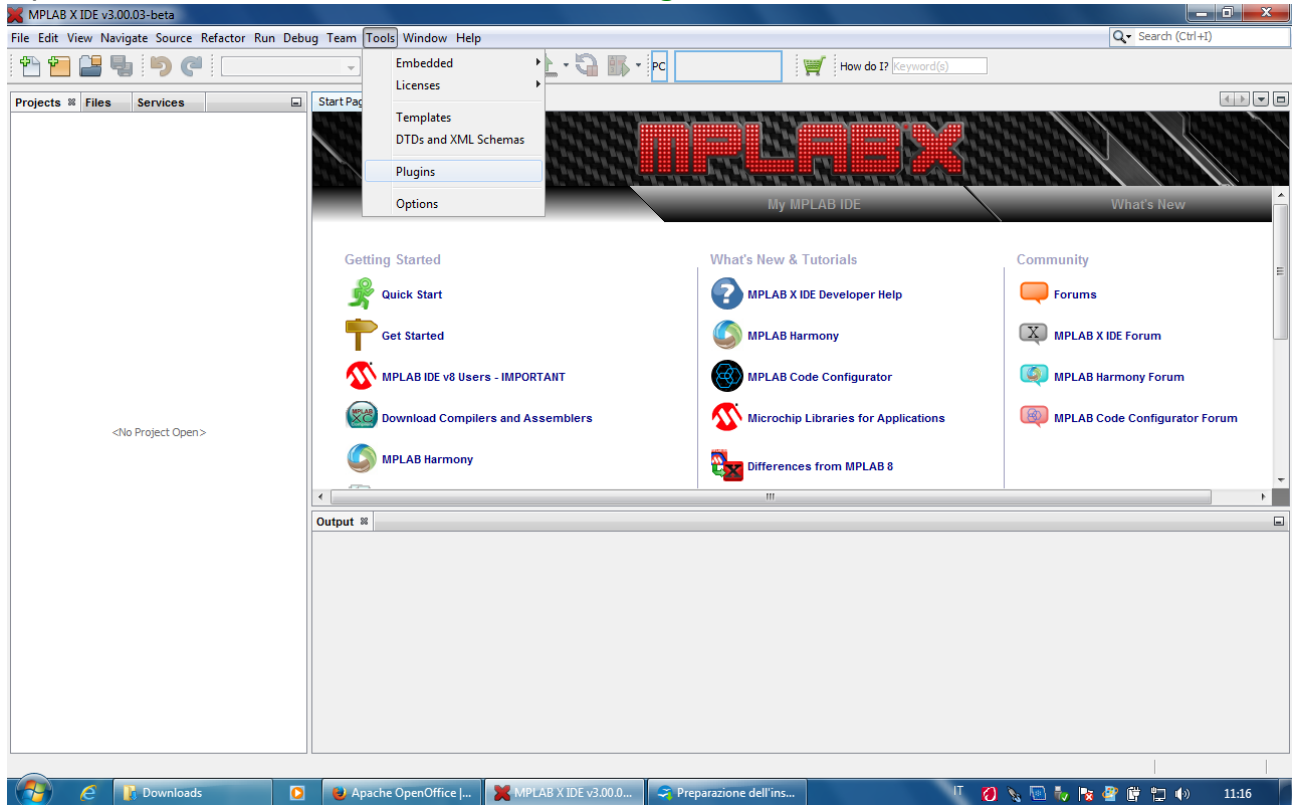
No backwards compatibility is available for VGDD versions prior to v. 9.0.0

Installing the plug-in

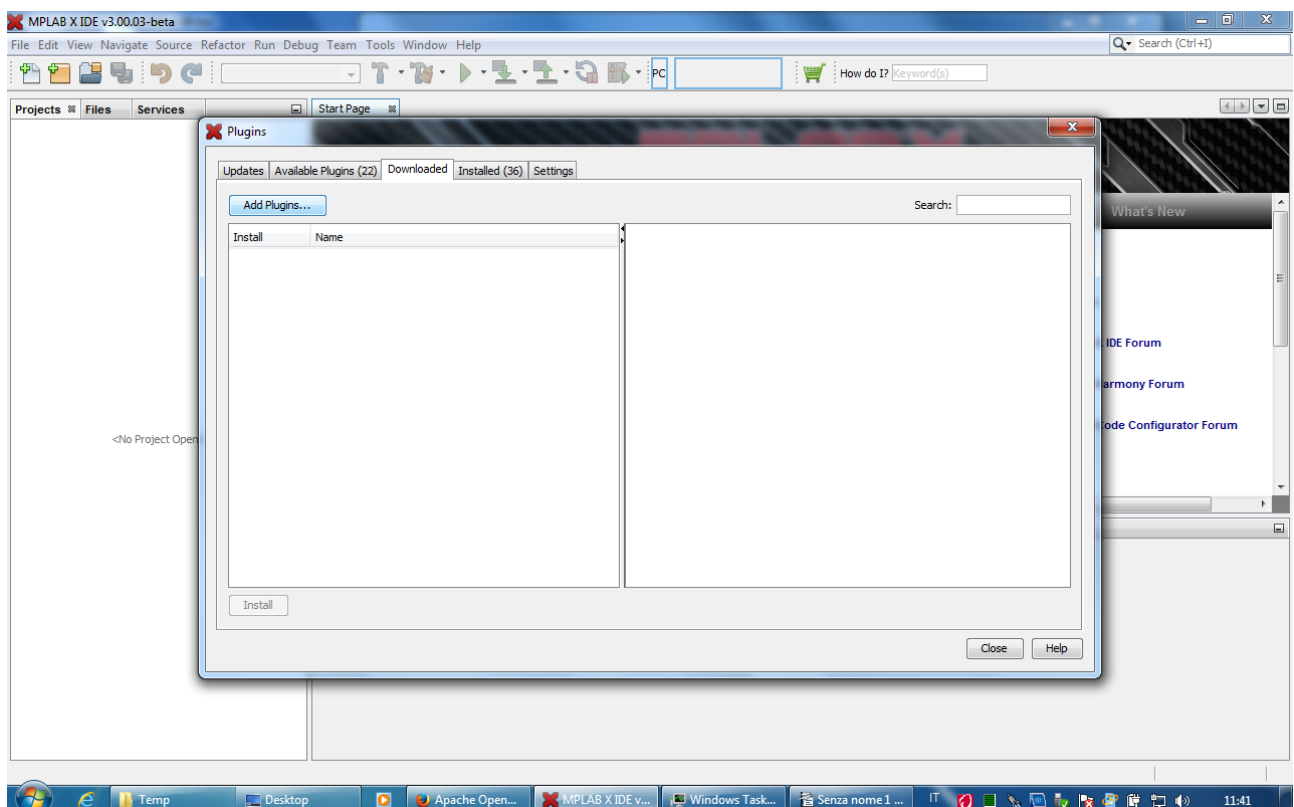
Download VGDD-Link plug-in from

http://www.virtualfab.it/mediawiki/index.php/Downloads_Page

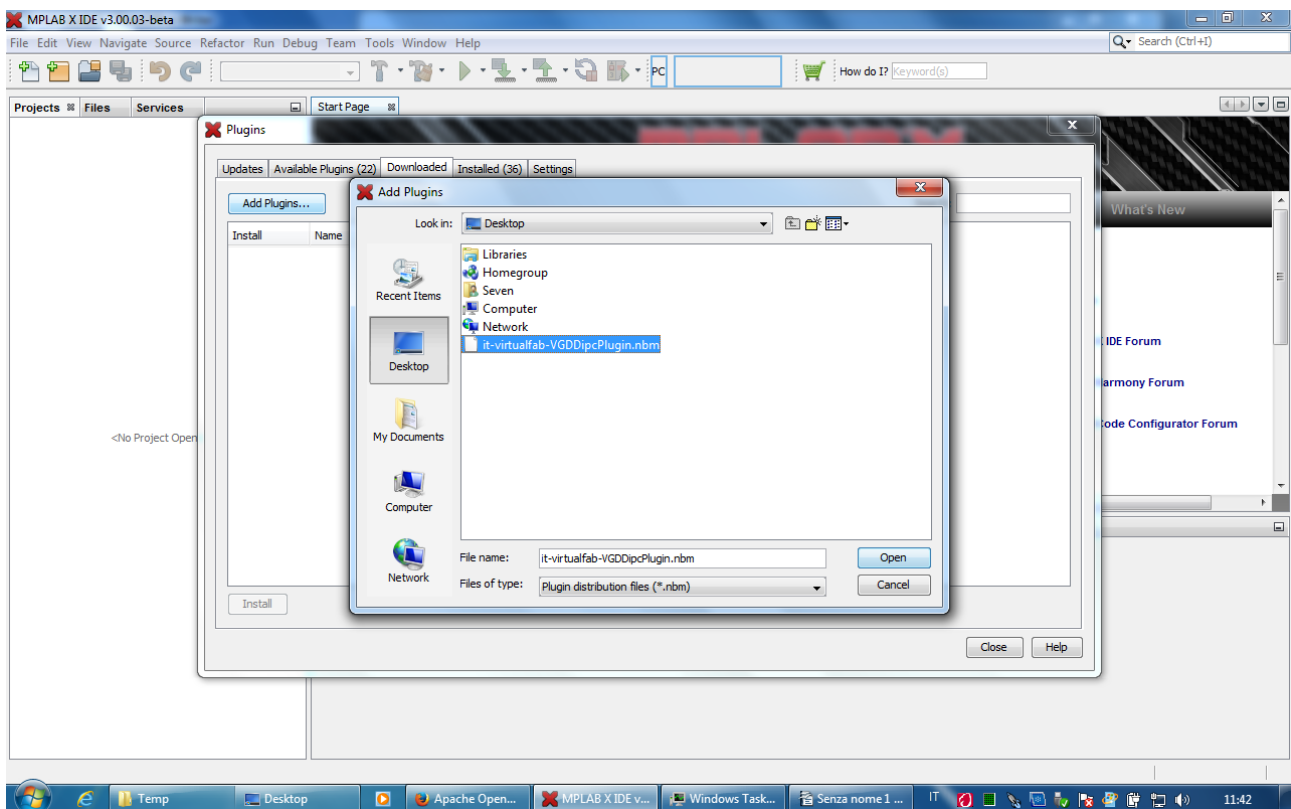
Open MPLAB®X IDE, and click on **Tools->Plugin** menu item:



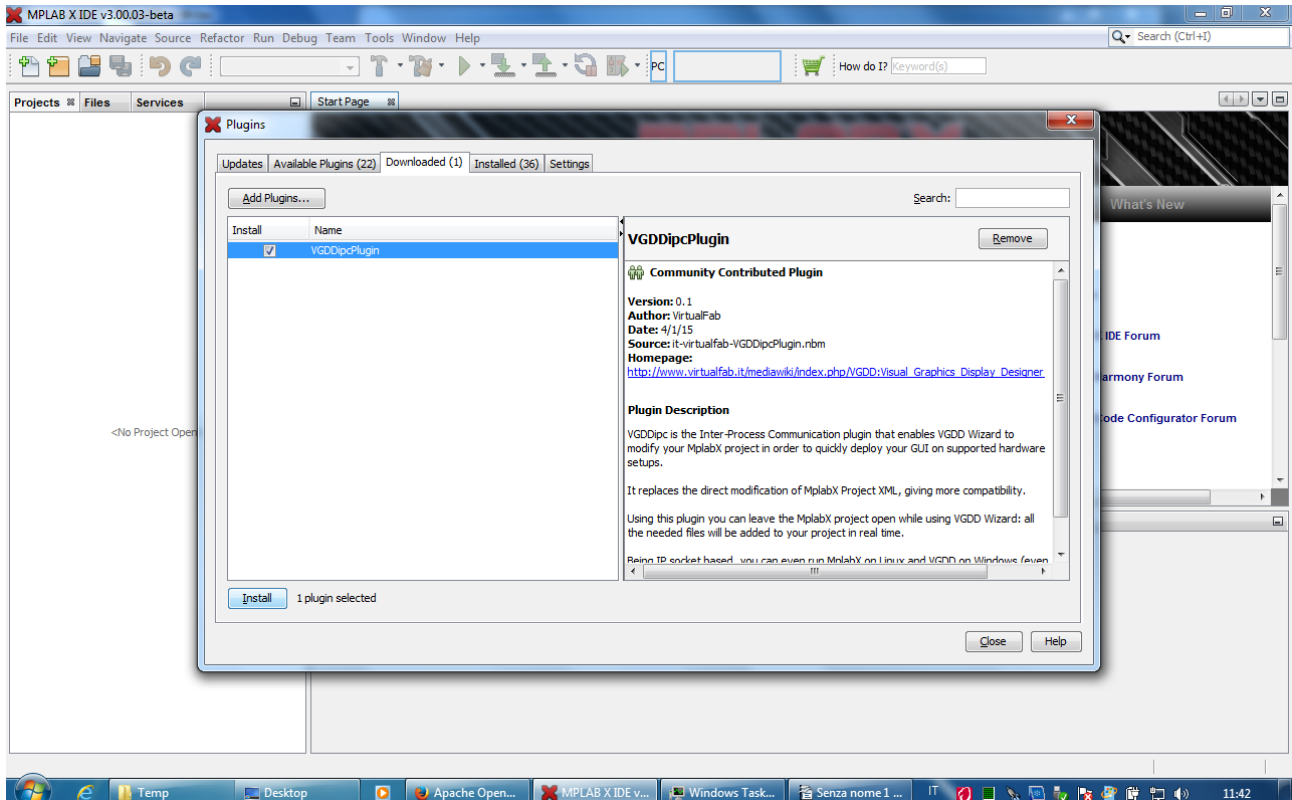
Click on the “**Downloaded**” tab, then on “**Add Plugins**”



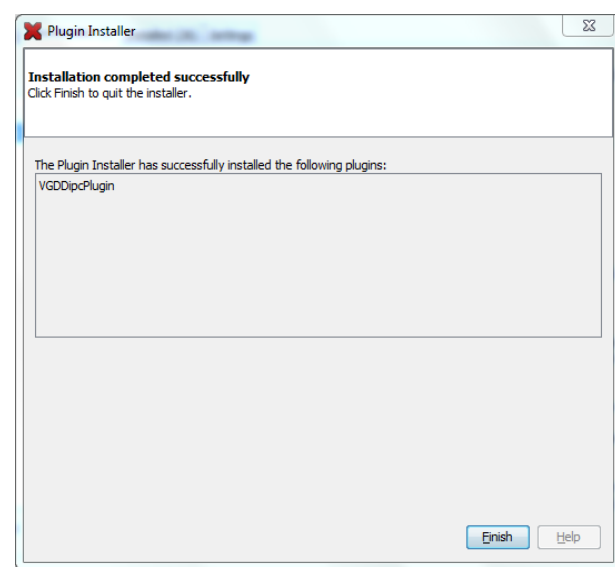
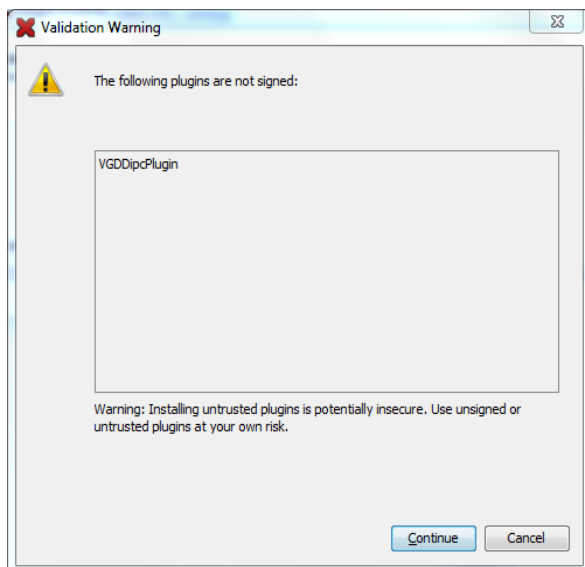
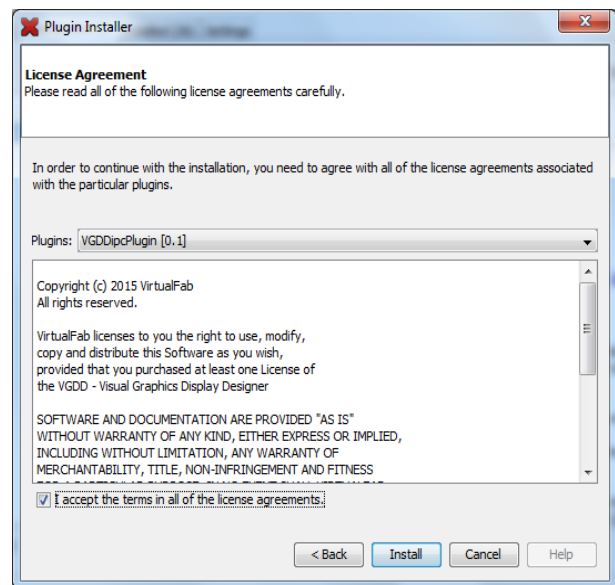
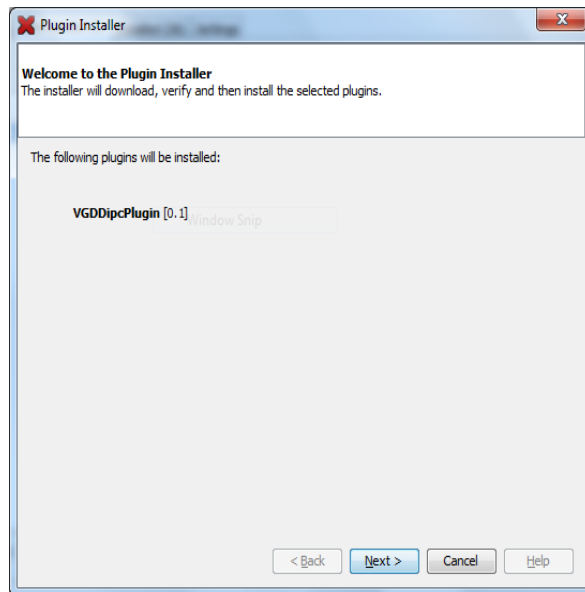
Navigate to the folder where you downloaded and saved the plug-in file, **it-virtualfab-VGDD-Link.nbm**:



Click on “**Open**”, then on “**Install**” and proceed to the plug-in installation:



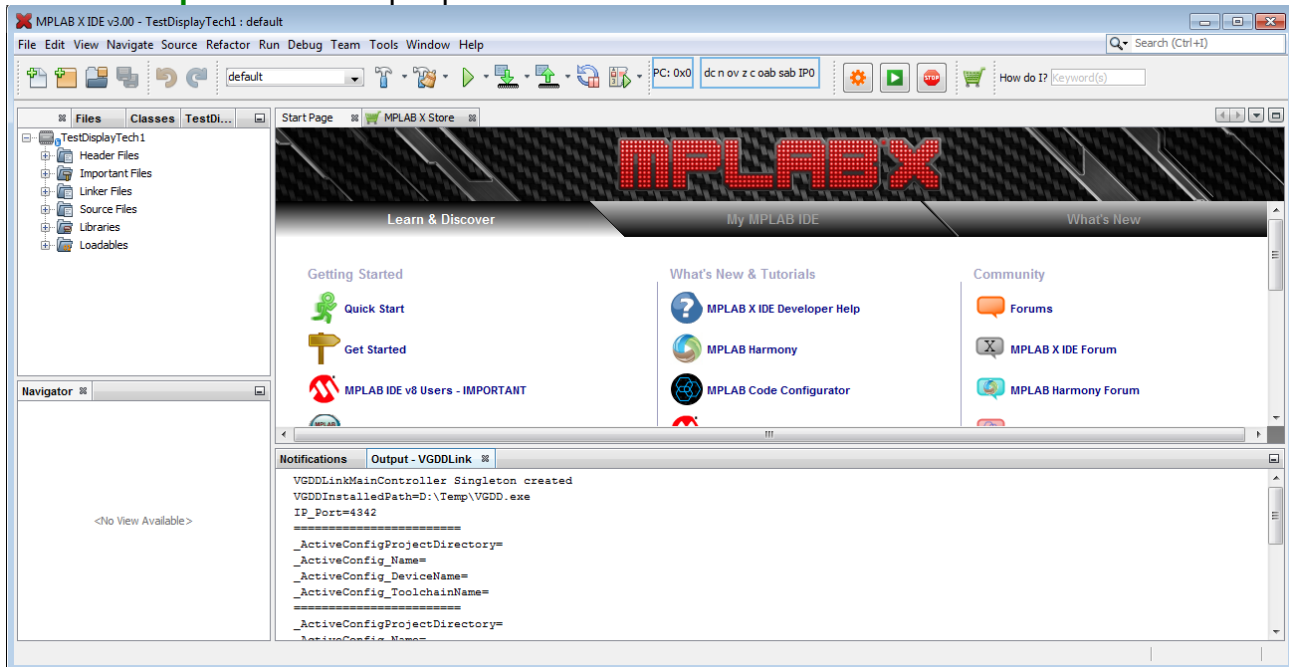
These are the various dialogs that will appear while installing the plug-in:



Once installed, the plug-in will automatically start and will show both a toolbar with three icons for Settings, Start and Stop



and an “Output” in the output pane below:




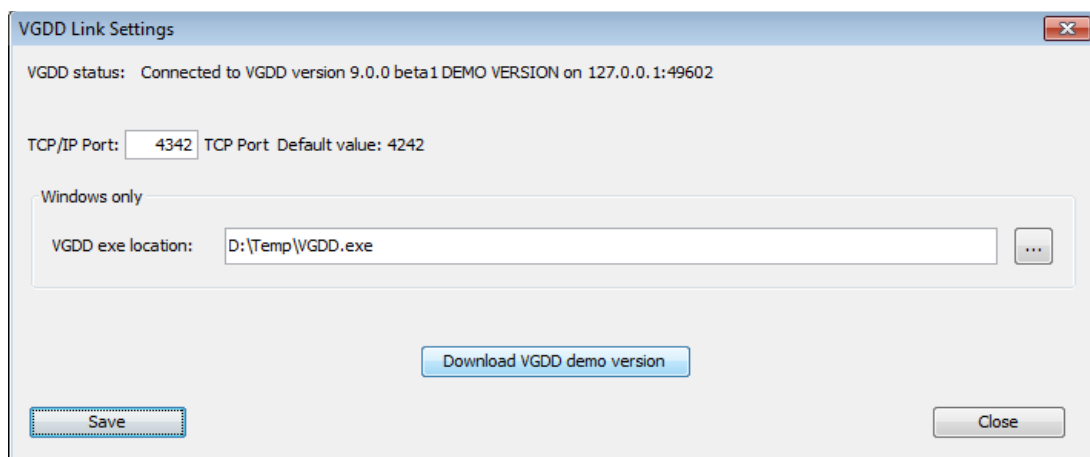
Configuring the plug-in

Thanks to the VGDD-Link plug-in you can launch VGDD (the GUI designer) from inside MPLAB®X.

For this feature to work correctly, two requisites have to be met:

- 1) MPLAB®X is running on a Windows PC (Linux and Mac aren't supported since VGDD is a Windows-only application)
- 2) You configured the path to VGDD.exe executable


So, for the first use, click on the Settings icon  in the toolbar. The Settings panel will appear:



On this panel you can change the TCP port where VGDD-Link accepts connections from

VGDD (the default port 4242 should be fine unless it is used by other applications).

The “Windows only” sections is where you can specify the VGDD.exe path.

Click on the  button and navigate to the folder where you saved the VGDD.exe file you downloaded.

If you didn't download VGDD.exe yet, there's a “Download VGDD demo version” button that will open a browser on the Download page.

Once configured the path to the executable, you can click on “Save” and start using the plug-in.

Advanced configuration

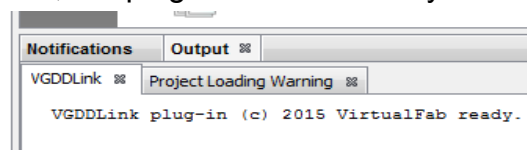
Even if MPLAB®X isn't running on Windows, you can still take full advantage of the plug-in features.


In fact, if VGDD is running on a Windows Virtual Machine (Parallels, VirtualBox, etc.) and MPLAB®X is running instead on the host PC (Linux or Mac), you simply have to

- 1) Manually launch VGDD on the Windows VM
- 2) Configure the actual IP address of the PC where MPLAB®X is running. This address is shown on the VGDD-Link output window in MPLAB®X (see “Connecting the plug-in” section below).

Using the plug-in

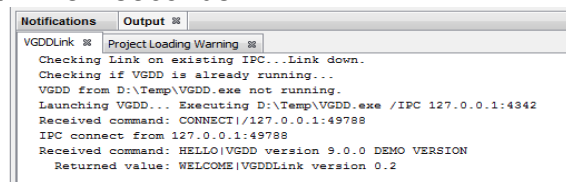
Every time you open MPLAB®X, the plug-in will be in ready state:



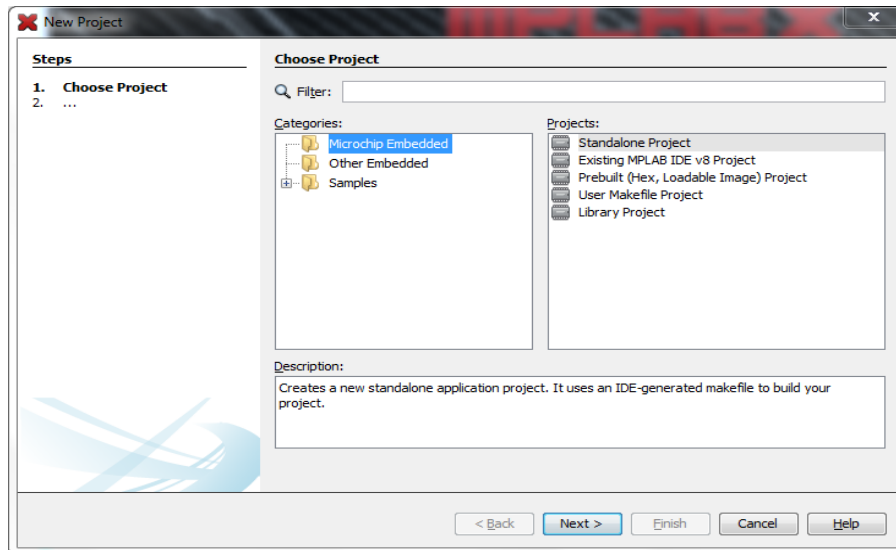
and **it has to be started** by clicking on the  Start button in the Toolbar.

This will start the IPC server socket, listening for incoming connections from the client VGDD.

In addition, only on Windows platforms, VGDD will be launched and it will automatically connect to the plug-in within few seconds:



The plug-in needs a project to modify, so first create an empty MPLAB®X project:

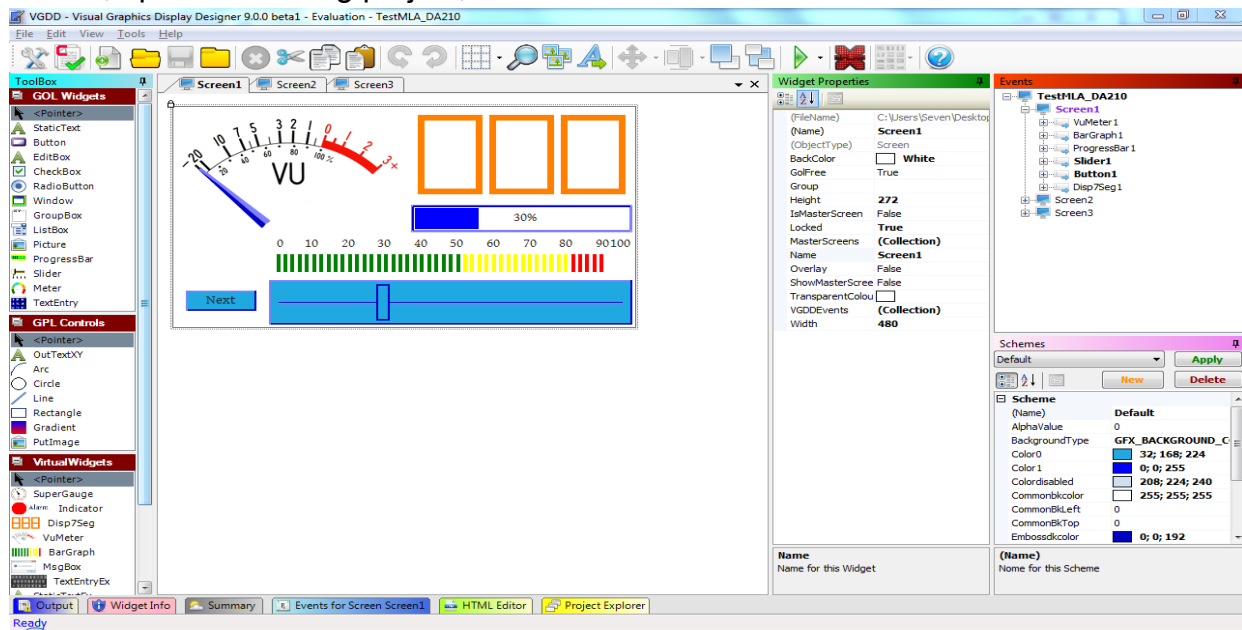


as you usually do when starting a new project with MPLAB®X.

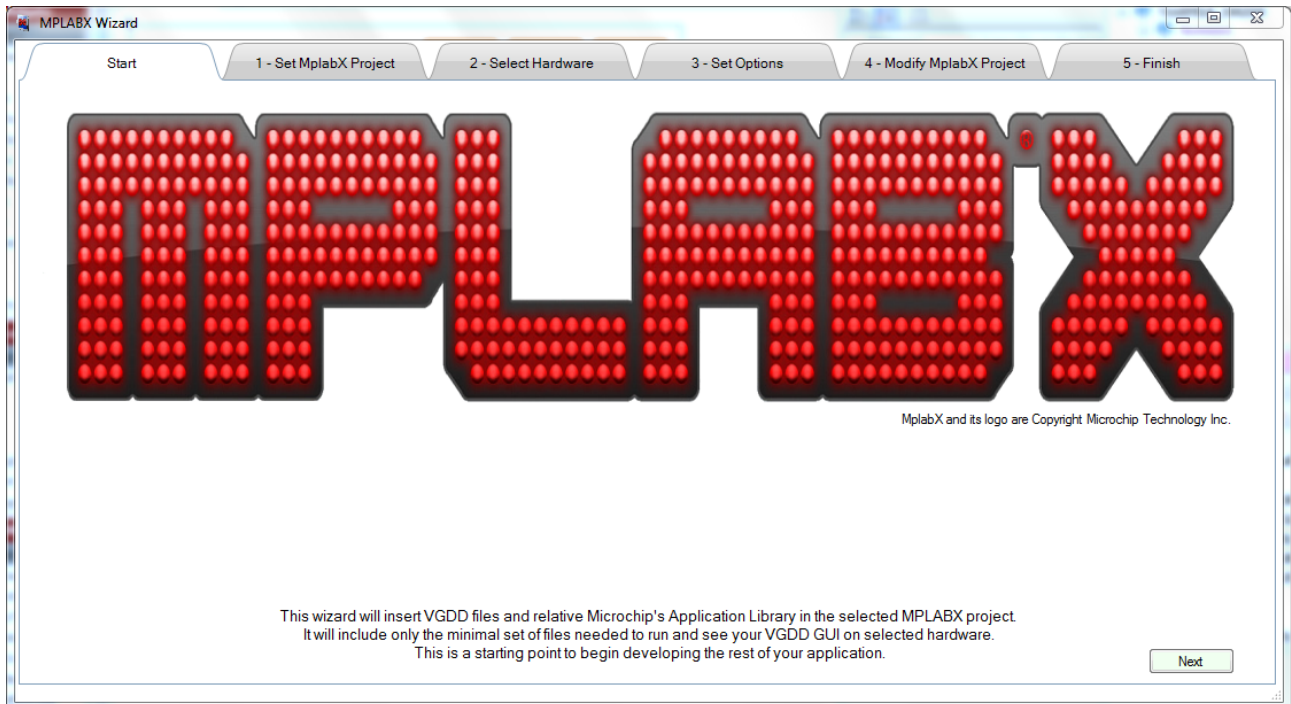
Leave MPLAB®X open (this is a main new feature of using the plug-in technique), and **switch to VGDD**.

If you're not on Windows, activate your Windows VM and launch VGDD.

In VGDD, open an existing project, or create a brand new one.



In either case, run the **VGDD MPLAB®X Wizard**:



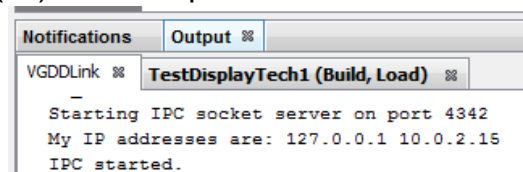
Click “**Next**” to start using the Wizard

Connecting to plug-in

If VGDD and MPLAB®X are running on the same Windows PC, then the localhost IP address 127.0.0.1 is already set and they are already connected:



If instead VGDD is running on a Virtual Machine hosted on a Linux or Mac system, and MPLAB®X is running on the host PC, then the correct IP address has to be entered. VGDD-Link shows these address(es) in the output window:



In this example, the right IP address to enter in the VGDD field is 10.0.2.15 for the plug-in to communicate.

The same happens for the TCP port (default value is 4242).

Notice: communication between the applications is done via IP so you can even run MPLAB®X and VGDD on different **physical** PCs, provided that they share the project files on a common shared folder.

If the displayed “Selected MPLAB®X Project” shows (**None – Open/Select project in MPLAB®X please!**), it means that in MPLAB®X IDE no project is open, or that the open project is not the “main project”.

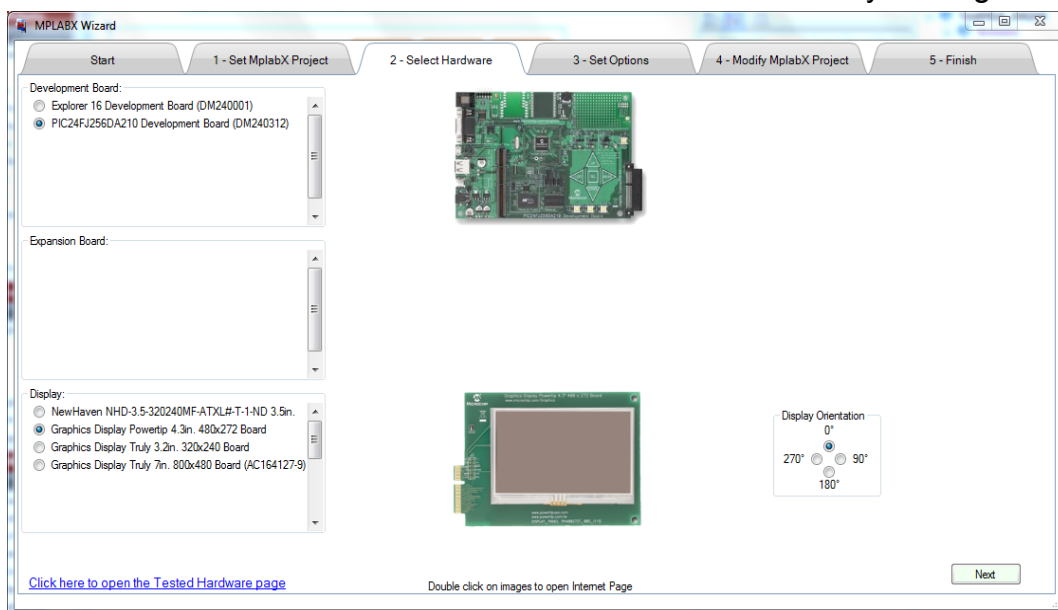
To solve this, go back to MPLAB®X IDE, right click on project's title and select “**Set as main project**”.

Once the plug-in recognizes the current active MPLAB®X project, it notifies VGDD with current project's data:

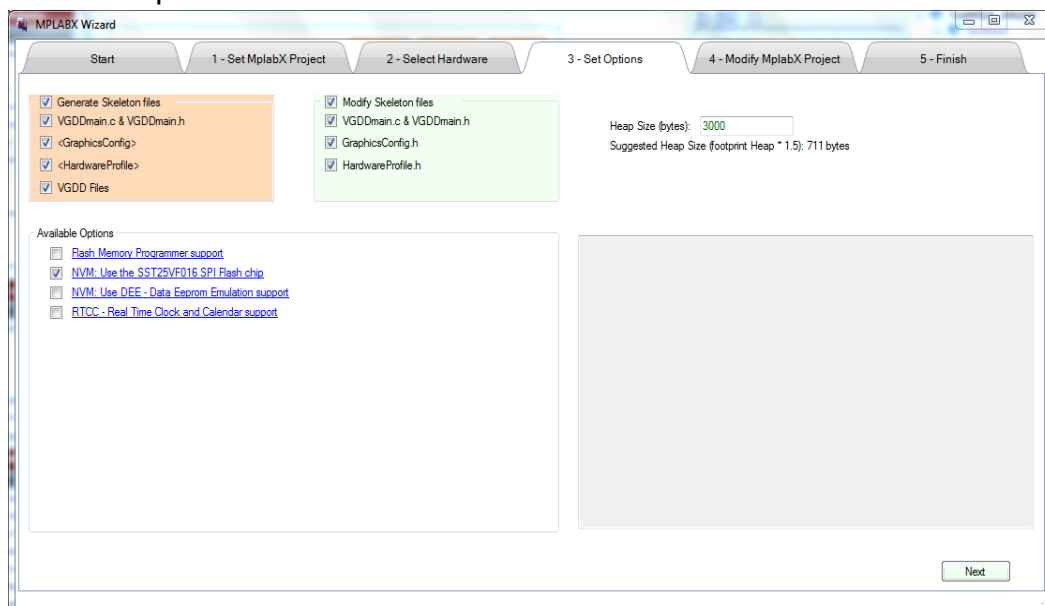
```
MplabX Project - Data from VGDDLink plug-in
Selected MPLABX Project: D:\pic\Software\Pic\PIC24FJ256GB412\TestDisplayTech1\TestDisplayTech1.X
Selected Config: default
Language Toolchain: XC16
```

Before continuing, **be sure to configure the Framework to use**, between the available MLA Legacy, MLA (PIC24) and Harmony (PIC32).

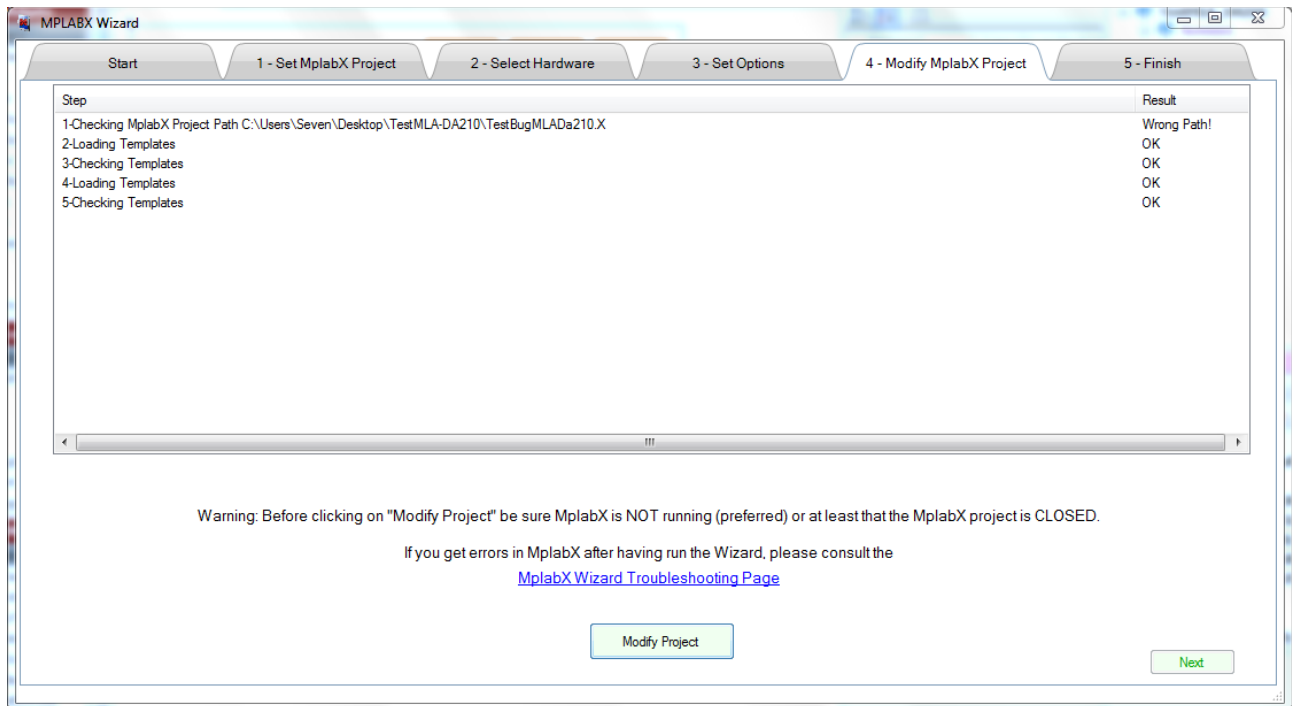
Then click on “Next” and the Hardware tab is shown as usual: select your target Hardware



and the available options

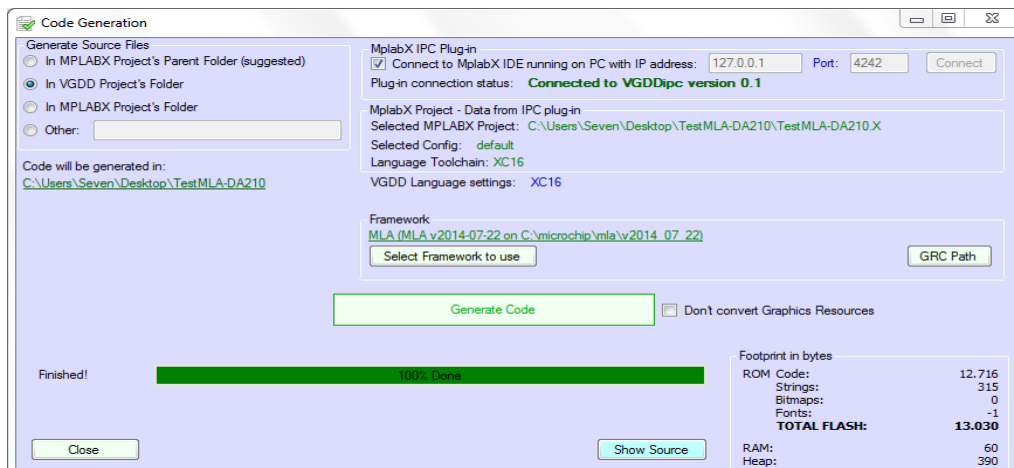


Now it's time to see the plug-in at work: click on “**Modify Project**”



You can switch to MPLAB®X IDE at any time to see the log of the plug-in in action and the project that populates in real time with all the needed modules.

Next step is “Generate Code” in VGDD:



Build Project

Now it's time to switch back to MPLAB®X IDE and play “**Run**” and finally see the

BUILD SUCCESSFUL