



PLC EXPERT

Hardware usage

1. Introduction

This manual introduces you how to upload your code to devices. Some devices may have different programming interfaces. Programming interfaces are described in hardware documentation. We are using USB-ASP as default programmer interface.

2. Programming device in Arduino IDE

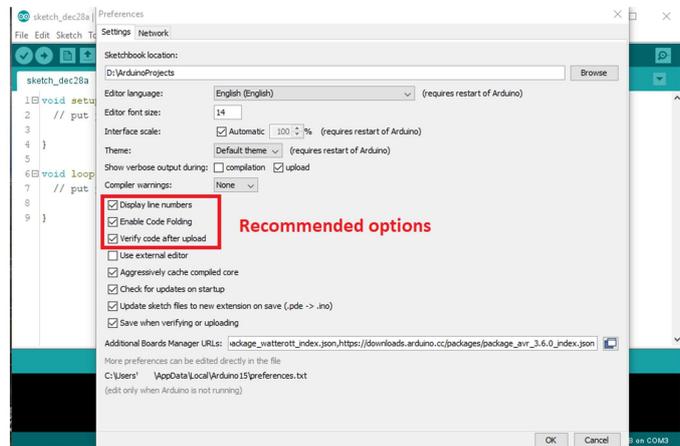
Our hardware supports Arduino IDE. See following instruction how to use this programming environment.

a) *Hardware support package install.*

In first step we recommend to setup Custom sketch location for Arduino sketches.

To setup custom location open preferences in Arduino IDE and modify field „Sketchbook location“.

If you are done with settings, click on OK button and close Arduino IDE application.



Sketch location should be created manually, additionally create subfolders „hardware“ and ”libraries“.

b) *Install support package*

Download support package zip file from GitHub and save to folder created above:
<https://github.com/plcexpert/plc-expert-arduino-hardware>.

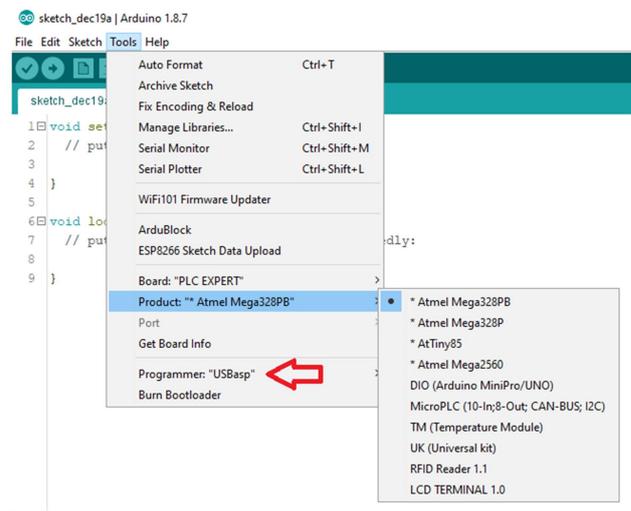
c) *Select hardware in Arduino IDE*

- Start Arduino IDE
- Expand Board menu and select PLC-Expert
- Then expand product menu to select your device

d) *Upload Bootloader*

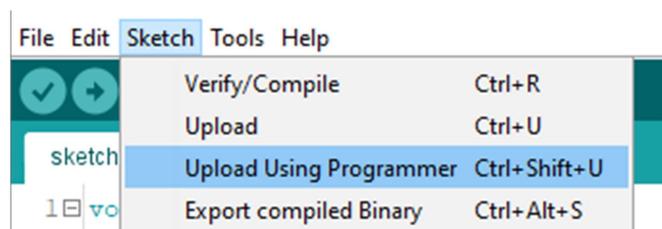
Bootloader should be burned to the device before using.

- Select product
- Select Programmer : **USB ASP**
- Connect board via USB ASP interface
- Click on “Burn Bootloader”



e) *Upload Arduino code*

- Select the right product
- Select Programmer : **USB ASP**
- Connect board via USB ASP interface
- Click on Burn “**Upload using Programmer**”



3. Programming device in Visual Studio Code

Arduino IDE is required for programming using Visual studio code (VSC).

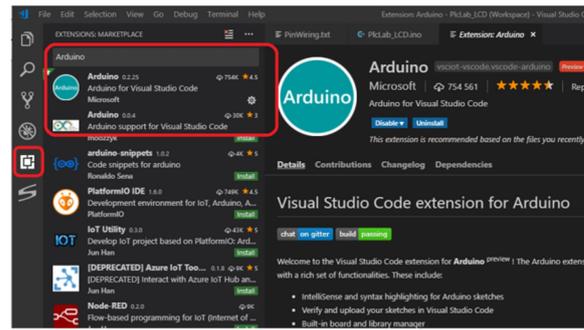
Download and install VSC: <https://code.visualstudio.com/download>

VSC allows save several project settings in workspace file

for example: board, programmer, port etc.

Workspace file saves VSC in the folder with Arduino ide “.ino” file.

Next VSC feature is the intellisense – commands help.



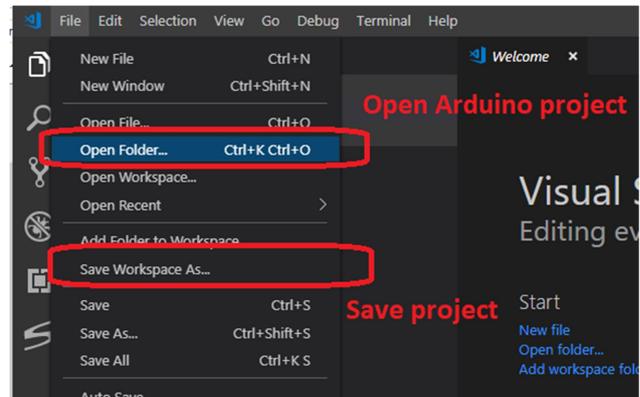
a) Install Arduino extension

- Start VSC and click on button “Extension”.
- Enter “Arduino” in Search Box.
- Select Microsoft Arduino extension and click on install button in right window

b) Open Arduino project

Open “File” menu and click on „Open Folder“.

Select folder with „ino” file

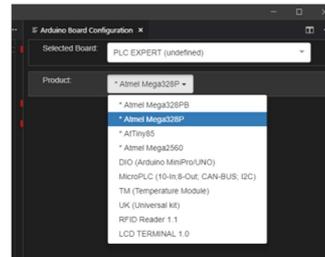
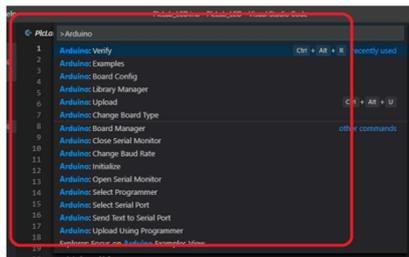


c) Save project – no yet used in VSC

Click on “Save workspace as...”

d) Select board

- Push F1 to expand command menu
- Enter “Arduino” – to filter up available Arduino commands
- Click on “Arduino: Board config” to select board and product.
- Expand “File” menu and click on “Save All”. Now is board configuration saved to your workspace file.



e) Verify and Upload code

Select ino file and icon automatically appears on.

