

# Software installation instructions for the TEMPO Summer School on Hardware Implementation of Embedded Optimization

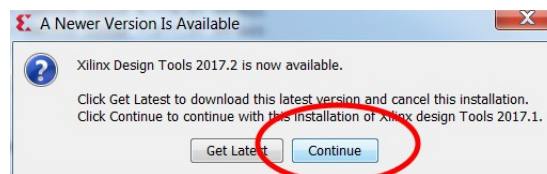
## FPGA module

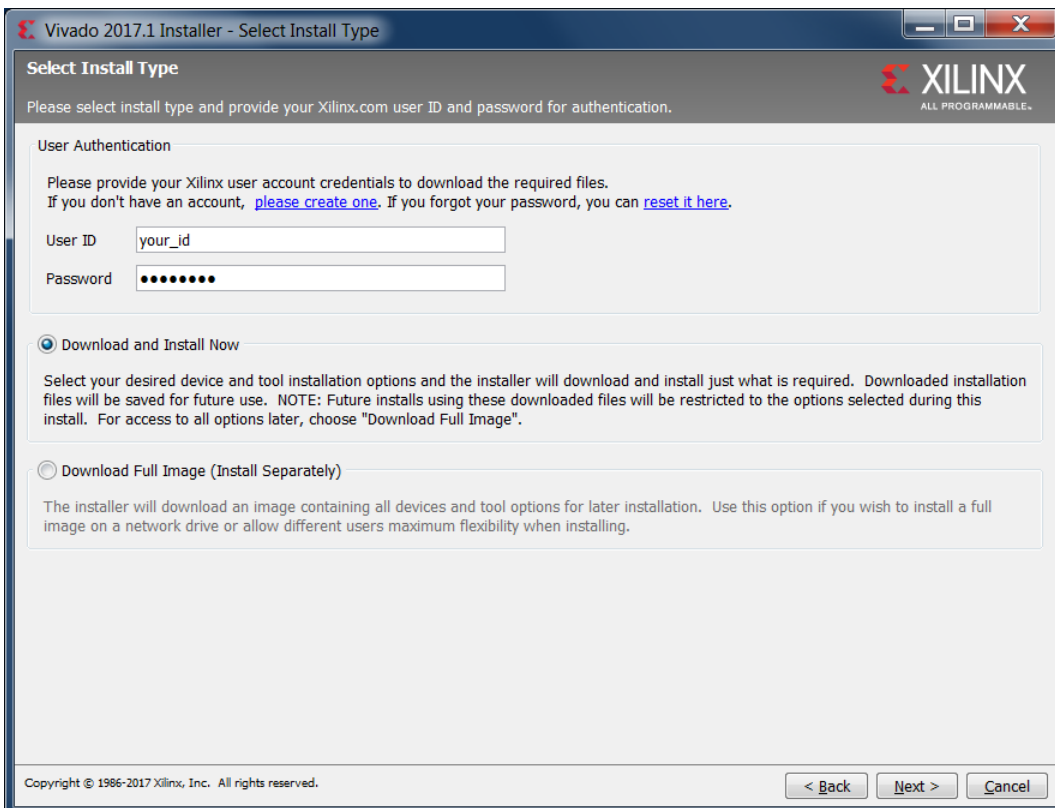
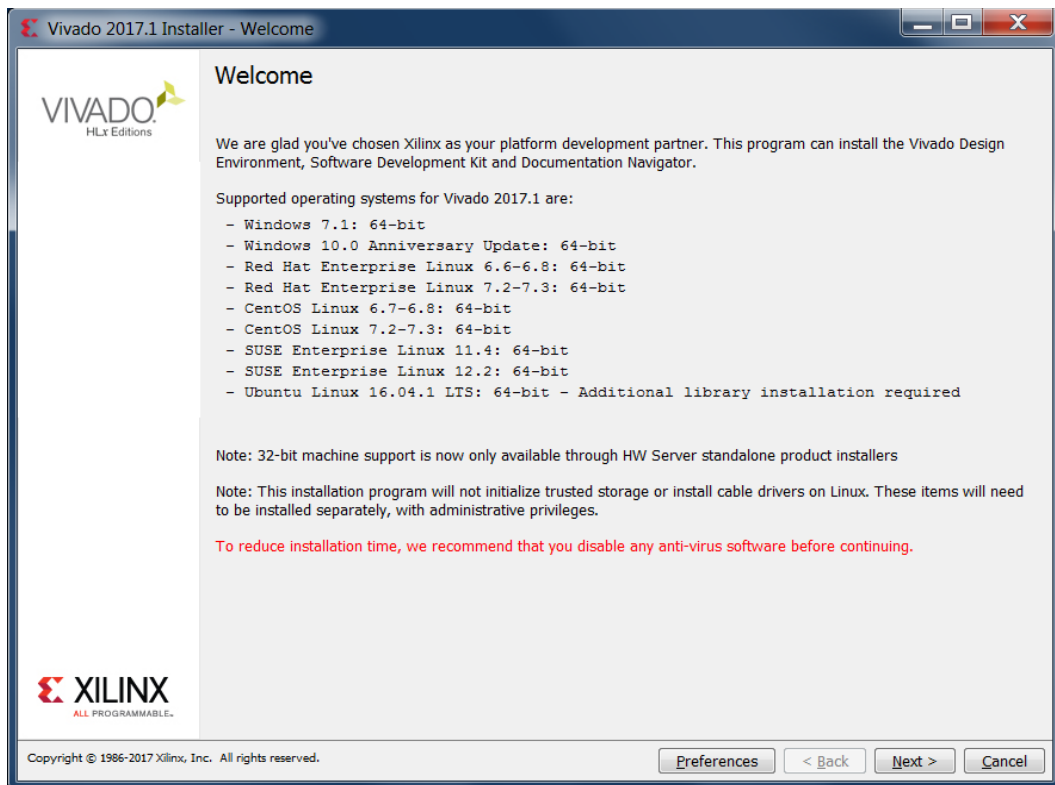
Vivado Design Suite, which is the core software tool used in this module, supports Windows 7.1, Windows 10.0 and several Linux distributions. However, software installation and driver configuration is not straightforward on Linux. For that reason installation instructions are provided for Windows machines only. Mac users may use Windows virtual machine.

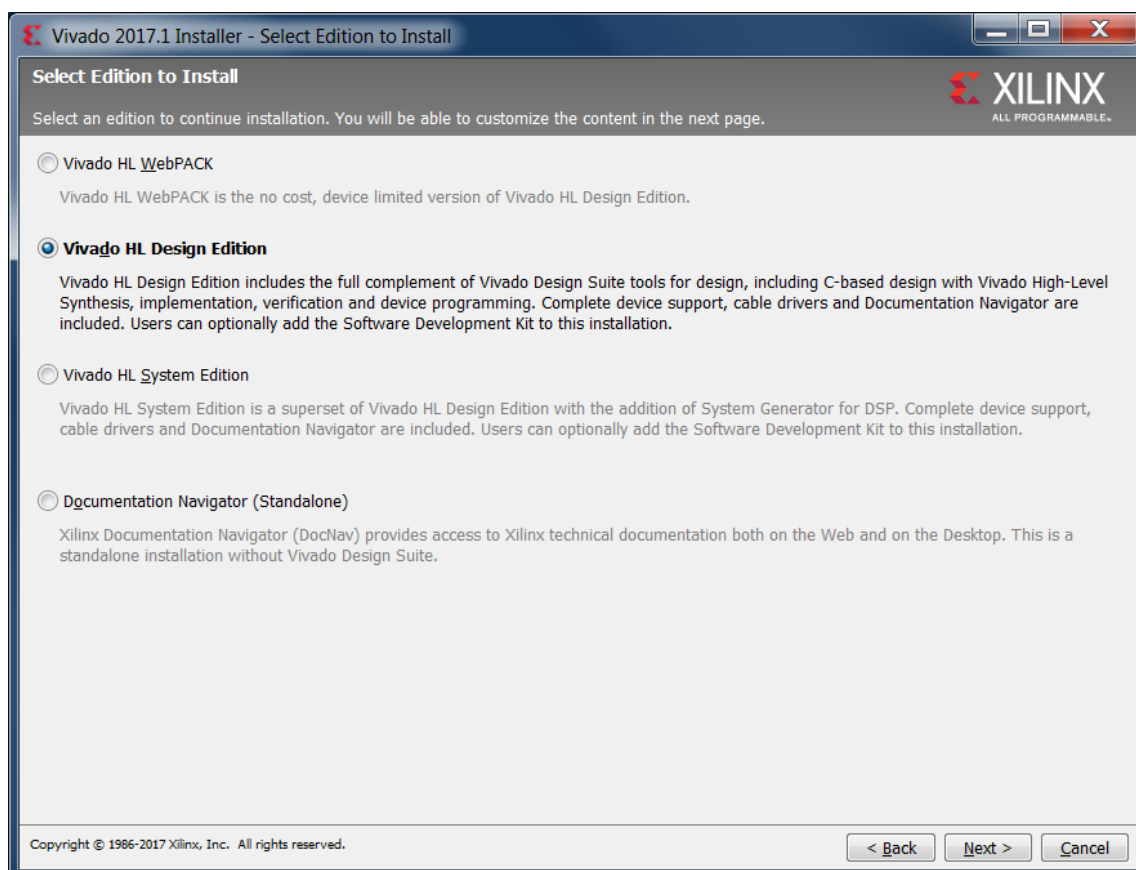
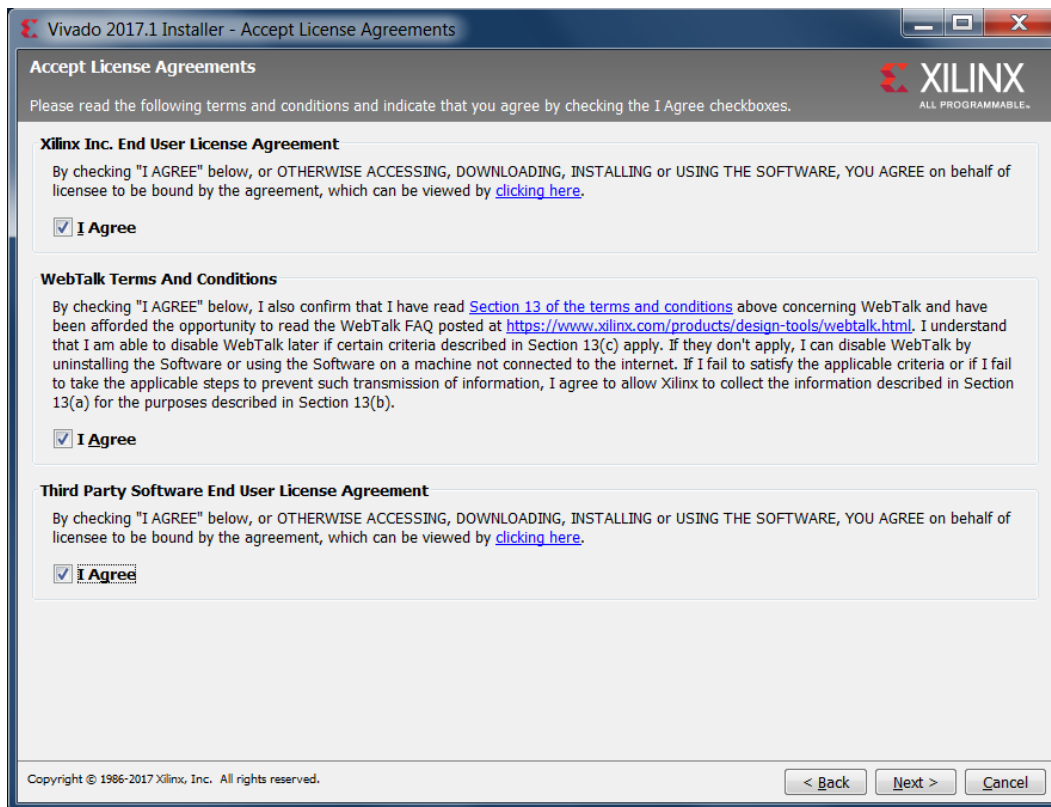
It is assumed that you have Matlab installed with Mex compiler configured.

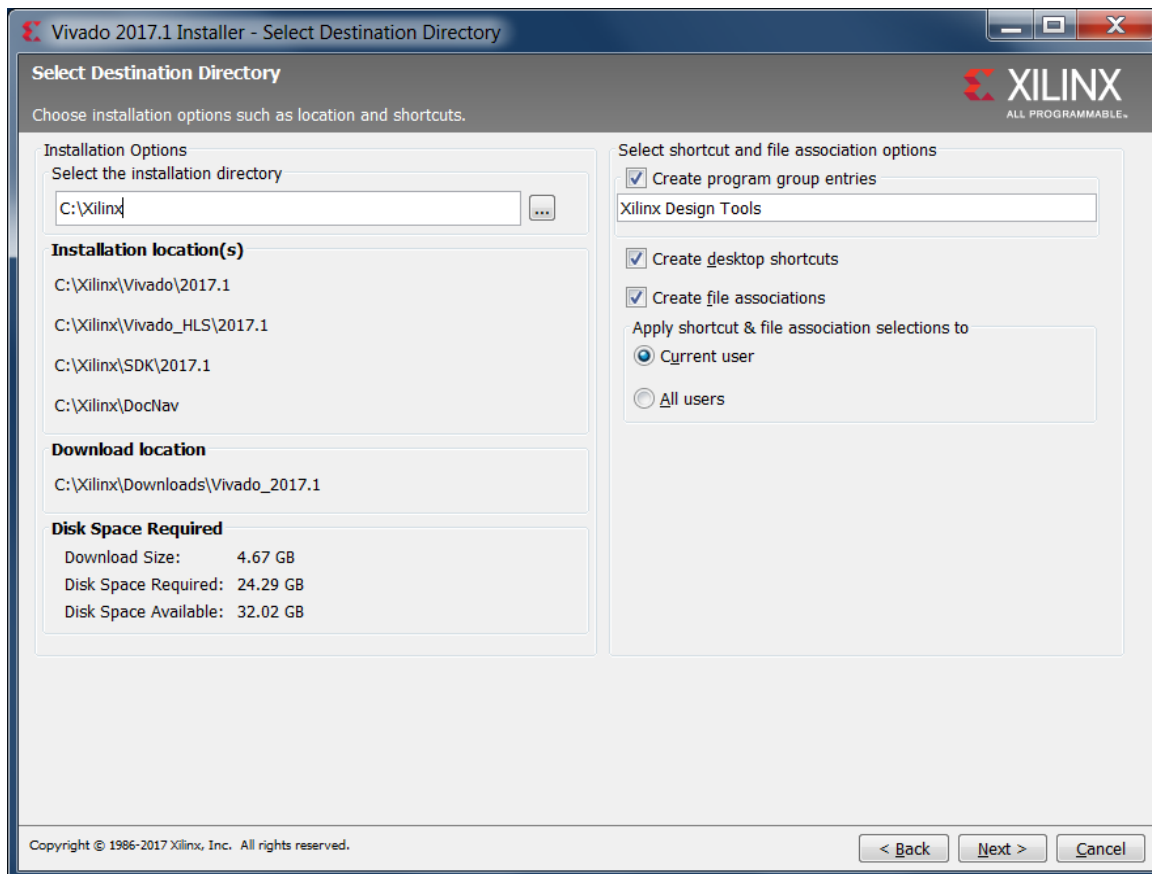
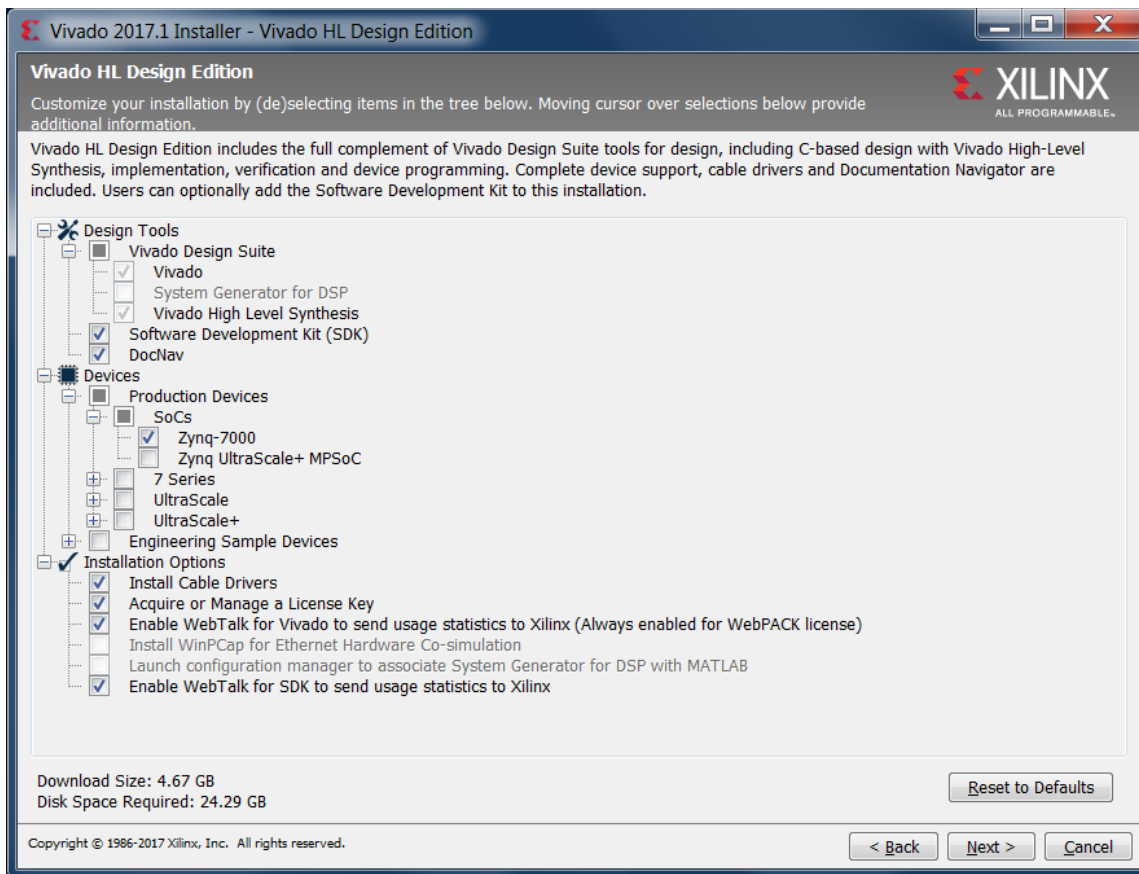
## Installing Vivado

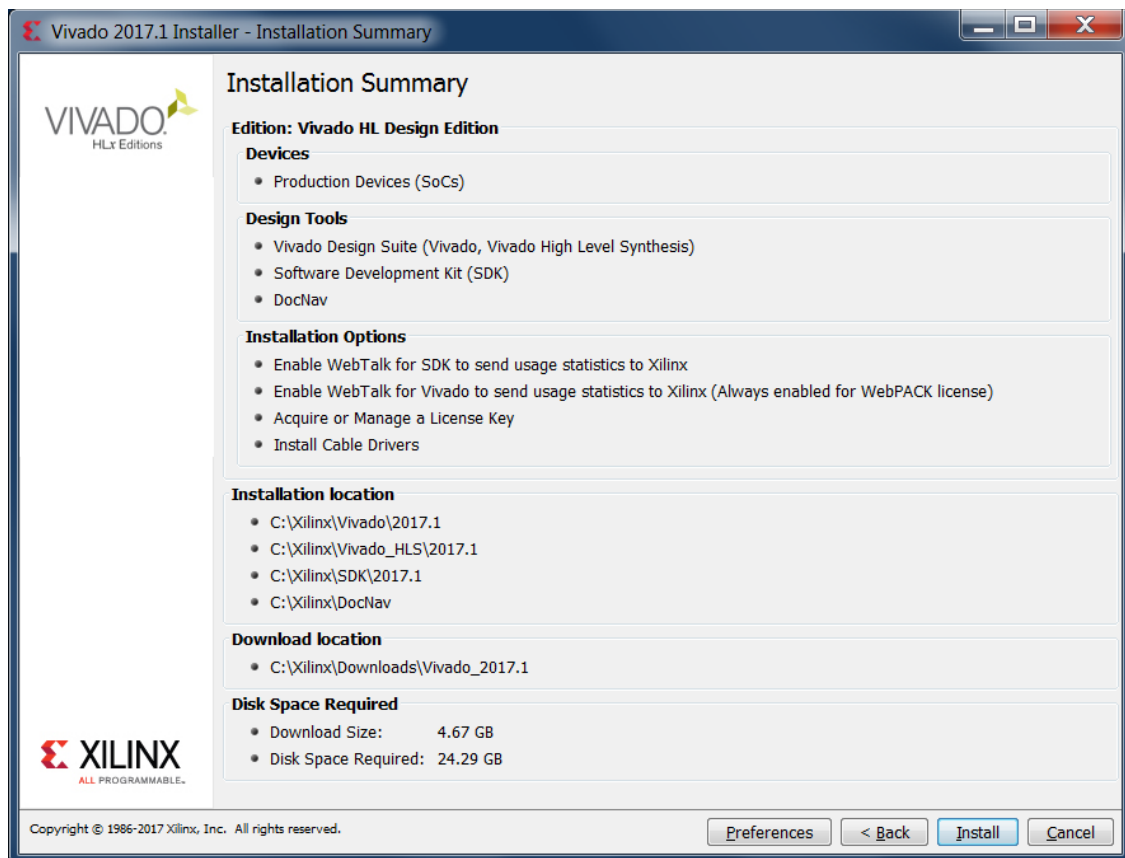
- Go to <https://www.xilinx.com/registration/create-account.html> and create your Xilinx account.
- Download Vivado Design Suite 2017.1: [https://www.xilinx.com/member/forms/download/xef.html?filename=Xilinx\\_Vivado\\_SDK\\_2017.1\\_0415\\_1\\_Win64.exe&akdm=0](https://www.xilinx.com/member/forms/download/xef.html?filename=Xilinx_Vivado_SDK_2017.1_0415_1_Win64.exe&akdm=0)
- Open the installation file, go through the installation process as shown on the screenshots:



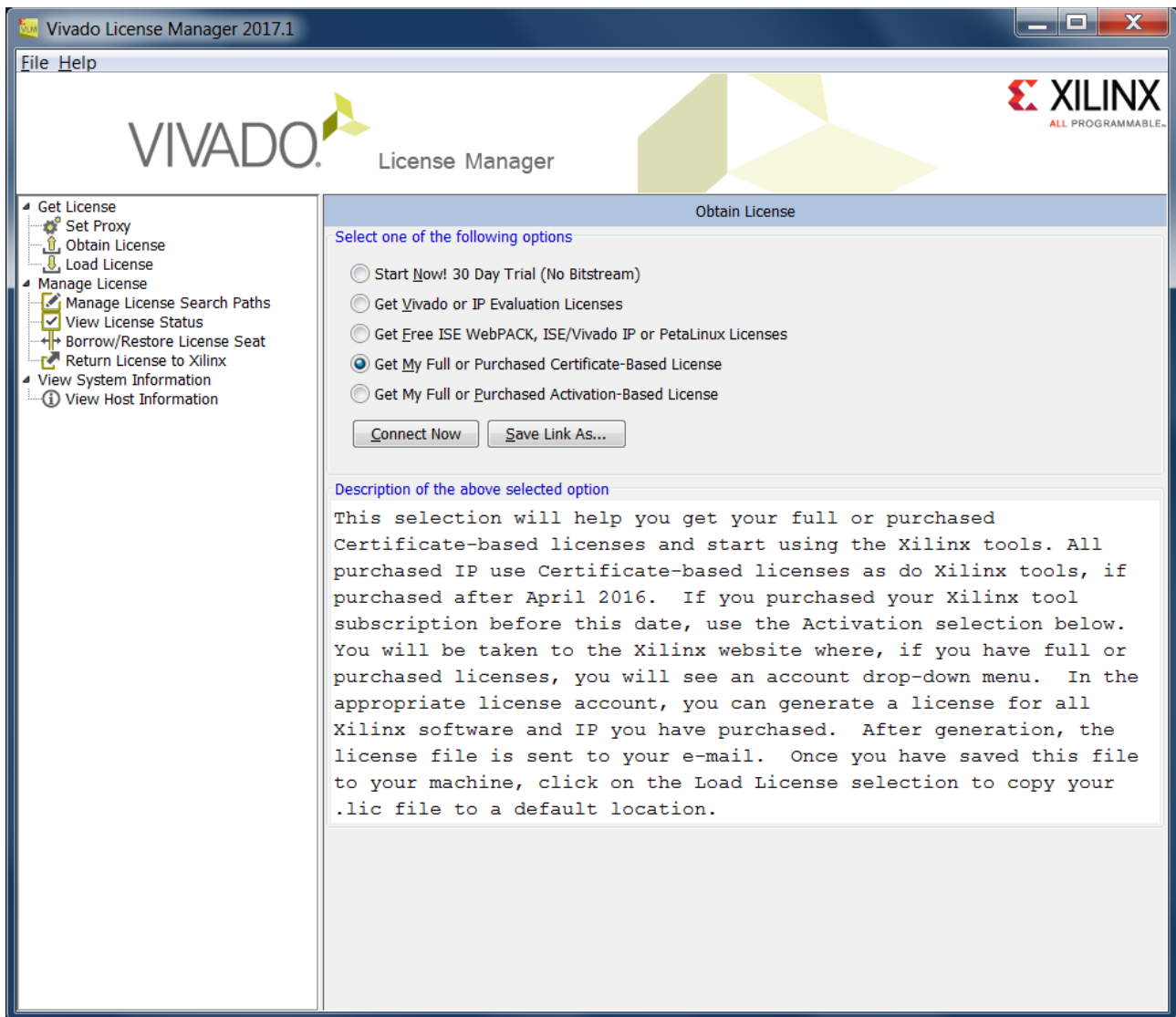








We will use built in license in this work, so there no need to configure license manager, just close it:



Add the following paths to *Path* environmental variable:

- C:\Xilinx\Vivado\2017.1\bin
- C:\Xilinx\Vivado\_HLS\2017.1\bin
- C:\Xilinx\Vivado\_HLS\2017.1\msys\bin
- C:\Xilinx\SDK\2017.1\bin

Details on how to edit environmental variables can be found here:

<https://www.computerhope.com/issues/ch000549.htm>

# Installing Protoip

Download the latest version of Protoip from:

<https://github.com/bulatkhusainov/XilinxTclStore/archive/master.zip>

Extract archive and rename the downloaded folder: “XilinxTclStore-master” → “XilinxTclStore”.

Set the following environmental variables:

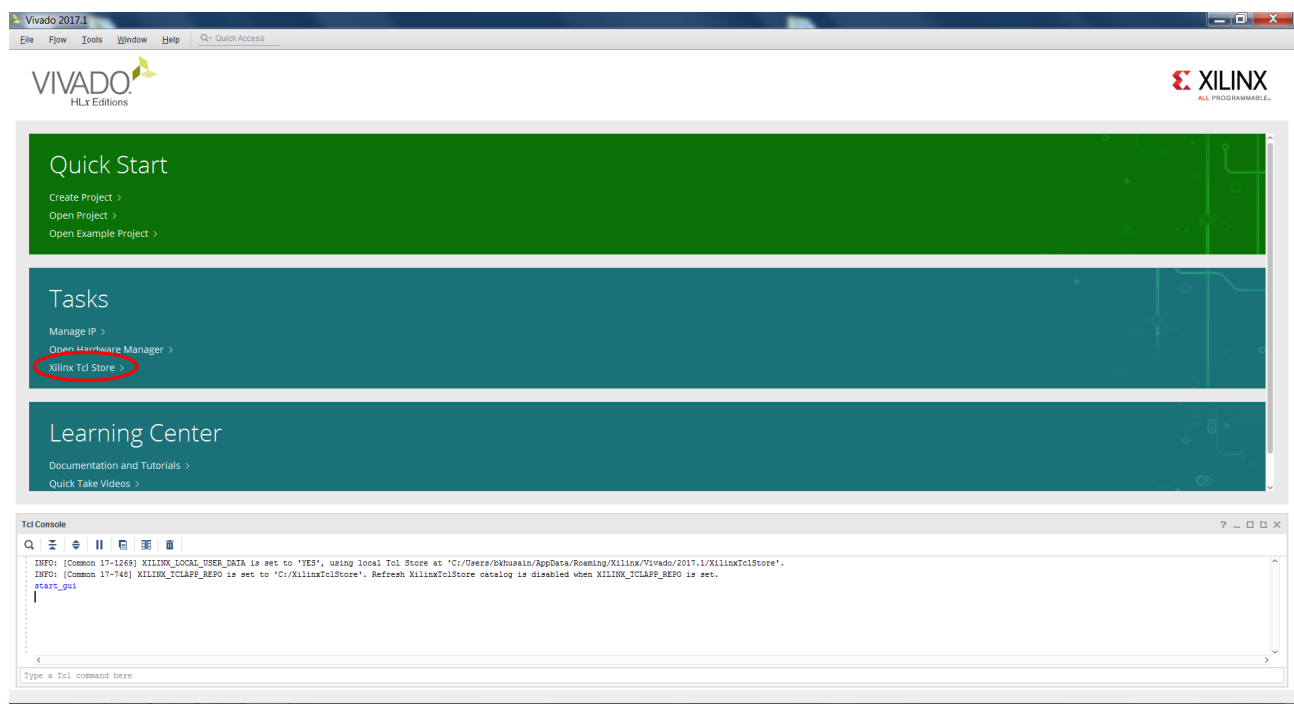
XILINX\_TCLAPP\_REPO=C:\path\_to\_XilinxTclStore\_folder

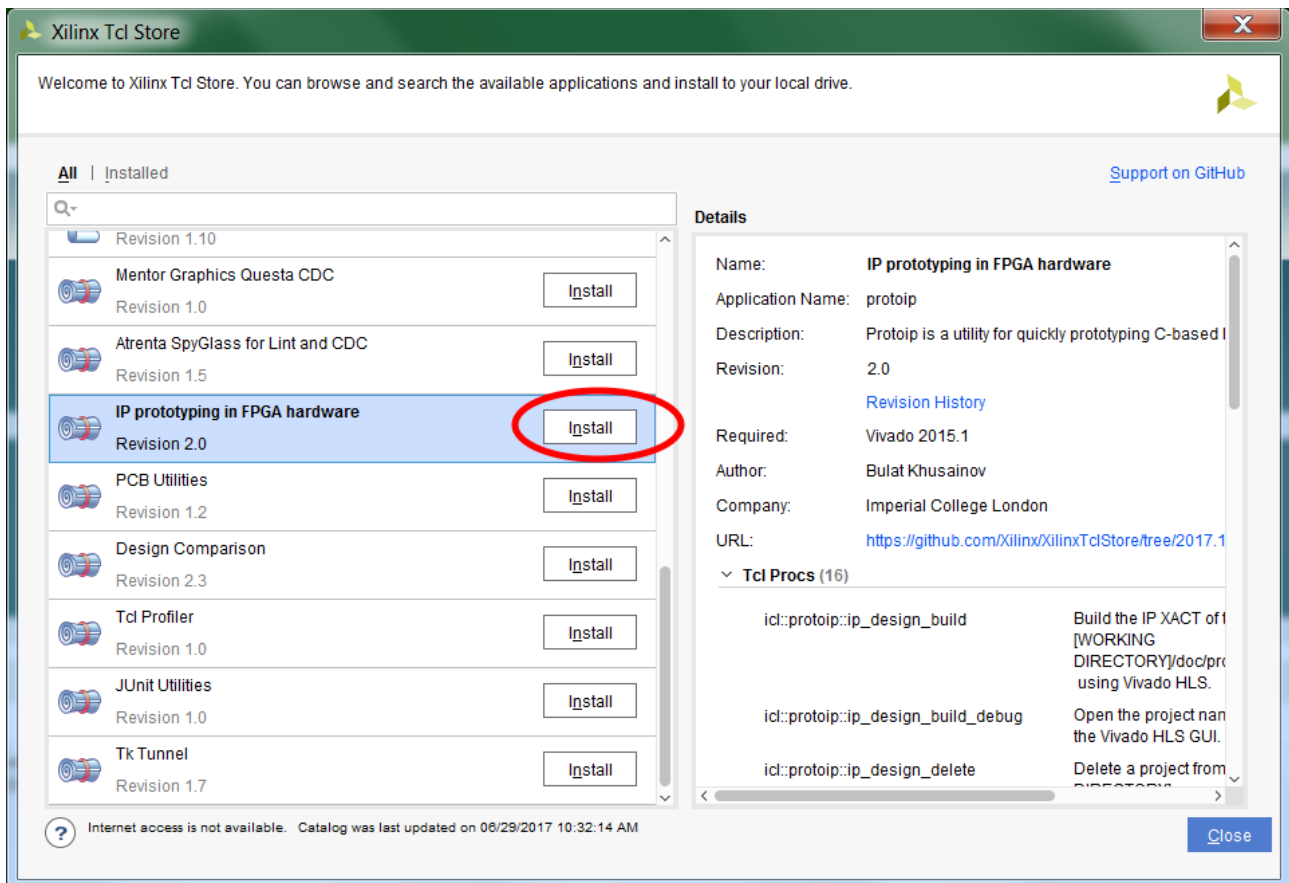
XILINX\_LOCAL\_USER\_DATA=YES

Details on how to edit environmental variables can be found here:

<https://www.computerhope.com/issues/ch000549.htm>

Open Vivado and follow the steps shown on the screenshots.





If Protoip is already installed, uninstall it and install again.

## **Installing Matlab interface for Protoip.**

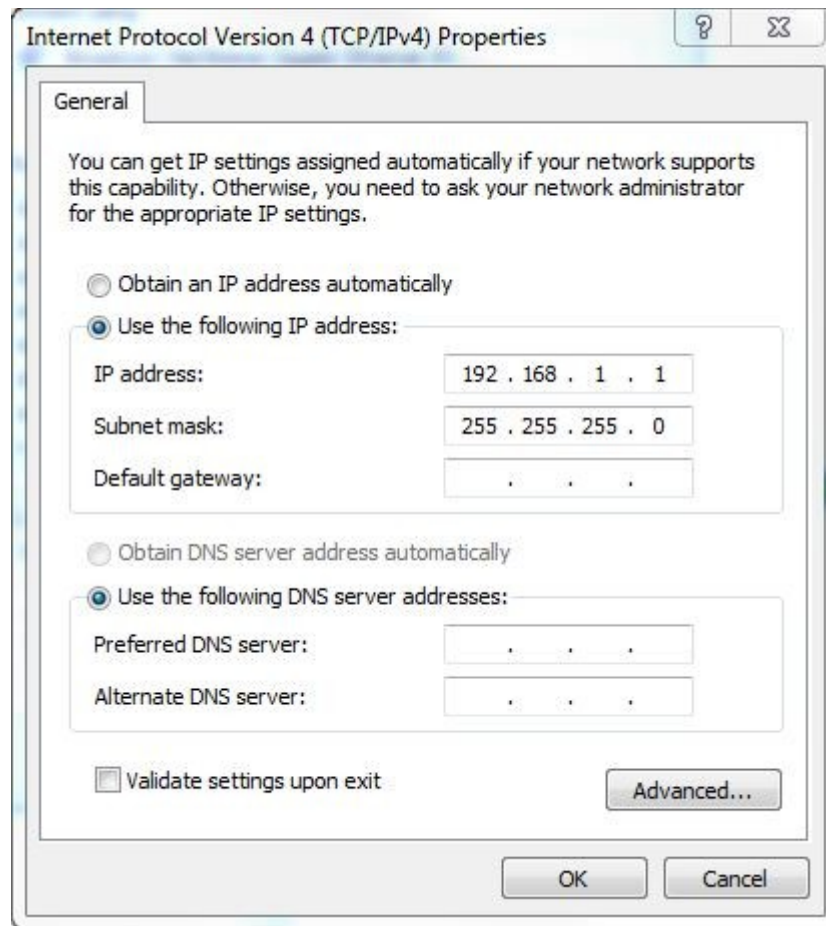
Download Matlab interface: <https://github.com/asuardi/protoip/archive/master.zip>

Add "protoip\_matlab\_interface" folder to Matlab path.

## **Configuring interface:**

Set a static IP address as shown on the screenshot below:





More details on configuring IP address can be found here:

<https://www.howtogeek.com/howto/19249/how-to-assign-a-static-ip-address-in-xp-vista-or-windows-7/>