

Xilinx Vivado RTL Webpack download and installation

This guide explains how to download and install the Vivado Design Suite tools. You will use this suite throughout the course. There are multiple versions of this tool. Here we will focus on installation of Webpack version which is free and available to all students.

1 Install The Vivado Design Suite

Vivado is a software produced by Xilinx for synthesis and analysis of HDL designs. The WebPack version of Vivado is free and You can download and install it from here:

<https://www.xilinx.com/support/download.html>

1.1 Download the Vivado Design Suite

Select the appropriate version for your laptop operating system. Choose "Vivado HLx 2018.2: WebPACK and Editions - Windows Self Extracting Web Installer" to download the Vivado SDK installer version 2018.2 for 64-bit Windows machine.

There is no official Vivado for the Mac. To use this software, you must do one of the following:

- Run Windows or Linux in a Virtual Machine
 - Download "Vivado HLx 2018.2: WebPACK and Editions - Linux Self Extracting Web Installer" from Xilinx website
- Use Vivado on EECS server

Vivado Design Suite - HLx Editions - 2018.2 Full Product Installation

Important

We strongly recommend to use the web installers as it reduces download time and saves significant disk space.

Please see [Installer Information](#) for details.

Note: Download verification is only supported with Google Chrome and Microsoft Internet Explorer web browsers.

Download Includes

Vivado Design Suite HLx Editions (All Editions)

Download Type

Full Product Installation

Last Updated

Jun 18, 2018

Answers

2018.x - Vivado Known Issues

Documentation

[Release Notes](#)

Enablement

[License Solution Center](#)

Vivado HLx 2018.2: WebPACK and Editions - Windows Self Extracting Web Installer (EXE - 50.56 MB)

MD5 SUM Value : 1b00a58303ddb3bca5e84fa1b26685b0

Vivado HLx 2018.2: WebPACK and Editions - Linux Self Extracting Web Installer (BIN - 99.45 MB)

MD5 SUM Value : 982490570f0c379bfcdeb32a31a5d0af

Download Verification

[Digests](#) [Signature](#) [Public Key](#)

You need a Xilinx account to download the tool. Register with your UCI net ID and sign in to download the Xilinx toolchain. This would be a file less than 100MB which will both download and install the tool for you.

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1.2 Install the Vivado Design Suite

This section explains the installation process for all platforms for the Vivado Design Suite. Couple points before extracting and installing the tools. Make sure your machine can support this toolchain. You can check this on Xilinx website. Also, make sure that you have enough space on your system for this tool. It might take up to a few Gigabytes.

Now, let's start the installer you have downloaded in the previous step. After you click on your installer it will extract the tool and prepare it for the installation.

To install Vivado on Linux:

- Open a terminal and run:

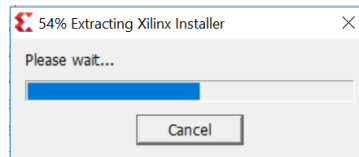
```
$chmod +x Xilinx_Vivado_SDK_Web_2018.2_0614_1954_Lin64.bin
```

```
$sudo ./Xilinx_Vivado_SDK_Web_2018.2_0614_1954_Lin64.bin
```

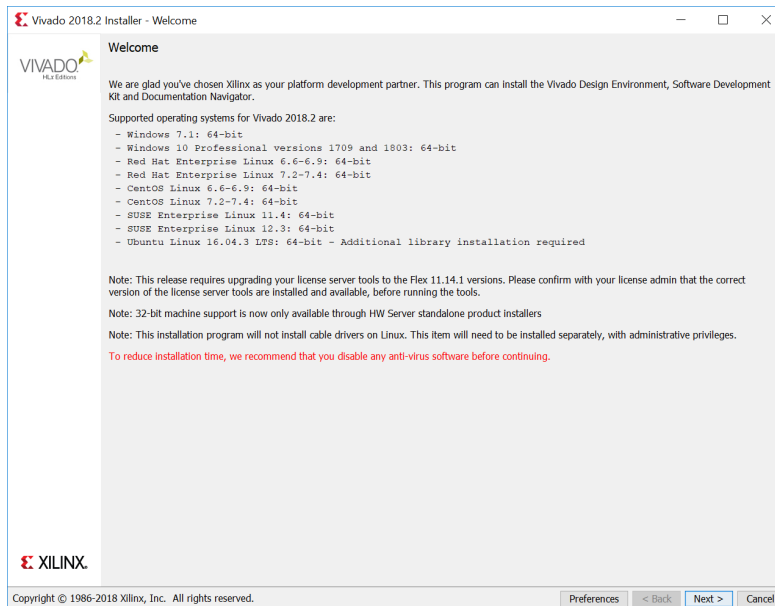
- Vivado Installer window will appear. The installation process is same as windows.
- After installing Vivado, open a terminal and type these two commands to run the software :

```
$source /opt/Xilinx/Vivado/2018.2/settings64.sh
```

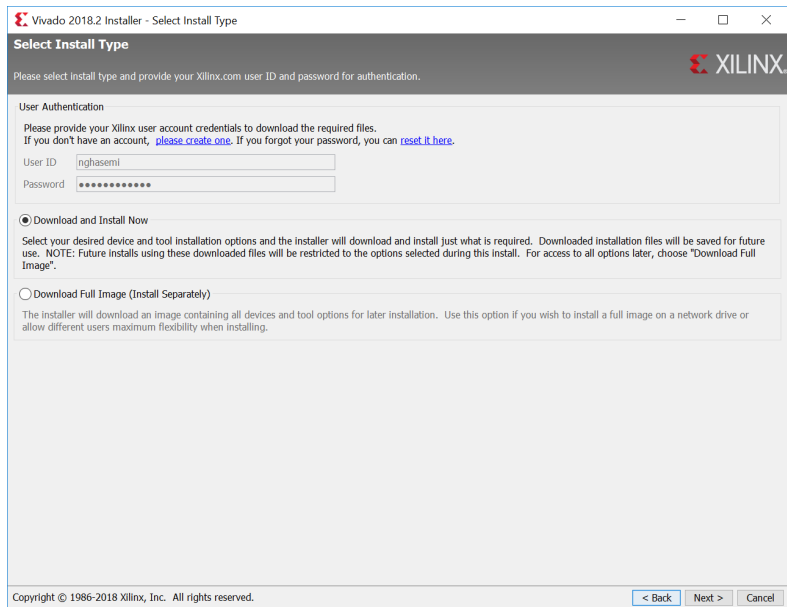
```
$vivado
```



Click Next.



A window will pop up asking about your installation type and your Xilinx account. You can use the account you have made at the beginning on the Xilinx website. Select the "download and install now" option. Click Next.



Vivado 2018.2 Installer - Select Install Type

Select Install Type

Please select install type and provide your Xilinx.com user ID and password for authentication.

User Authentication

Please provide your Xilinx user account credentials to download the required files.
If you don't have an account, [please create one](#). If you forgot your password, you can [reset it here](#).

User ID:

Password:

☒ **Download and Install Now**

Select your desired device and tool installation options and the installer will download and install just what is required. Downloaded installation files will be saved for future use. NOTE: Future installs using these downloaded files will be restricted to the options selected during this install. For access to all options later, choose "Download Full Image".

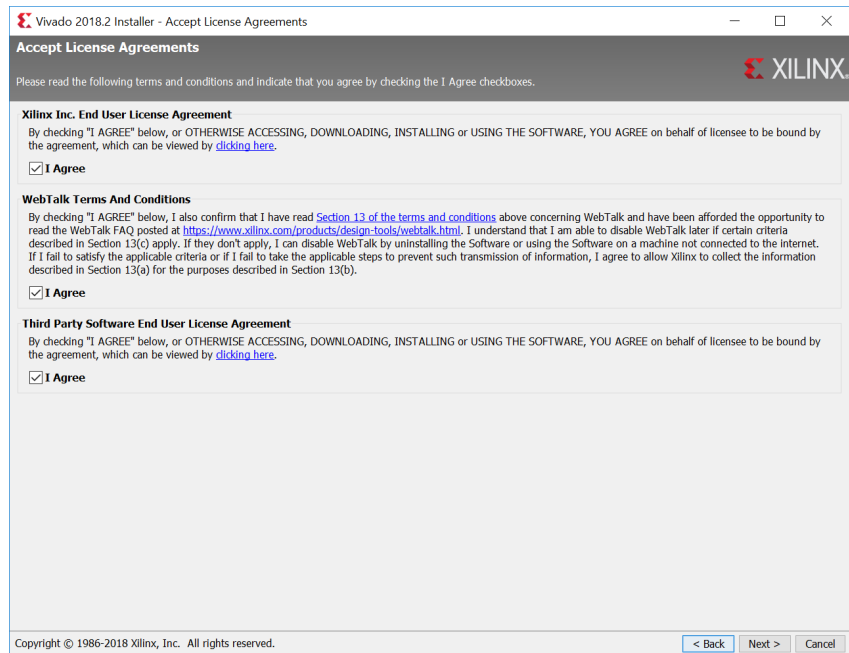
☐ **Download Full Image (Install Separately)**

The installer will download an image containing all devices and tool options for later installation. Use this option if you wish to install a full image on a network drive or allow different users maximum flexibility when installing.

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< Back Next > Cancel

Check "I Agree" boxes. Click Next.



Vivado 2018.2 Installer - Accept License Agreements

Accept License Agreements

Please read the following terms and conditions and indicate that you agree by checking the I Agree checkboxes.

Xilinx Inc. End User License Agreement

By checking "I AGREE" below, or OTHERWISE ACCESSING, DOWNLOADING, INSTALLING or USING THE SOFTWARE, YOU AGREE on behalf of licensee to be bound by the agreement, which can be viewed by [clicking here](#).

☒ **I Agree**

WebTalk Terms And Conditions

By checking "I AGREE" below, I also confirm that I have read [Section 13 of the terms and conditions](#) above concerning WebTalk and have been afforded the opportunity to read the WebTalk FAQ posted at <https://www.xilinx.com/products/design-tools/webtalk.html>. I understand that I am able to disable WebTalk later if certain criteria described in Section 13(c) apply. If they don't apply, I can disable WebTalk by uninstalling the Software or using the Software on a machine not connected to the internet. If I fail to satisfy the applicable criteria or if I fail to take the applicable steps to prevent such transmission of information, I agree to allow Xilinx to collect the information described in Section 13(a) for the purposes described in Section 13(b).

☒ **I Agree**

Third Party Software End User License Agreement

By checking "I AGREE" below, or OTHERWISE ACCESSING, DOWNLOADING, INSTALLING or USING THE SOFTWARE, YOU AGREE on behalf of licensee to be bound by the agreement, which can be viewed by [clicking here](#).

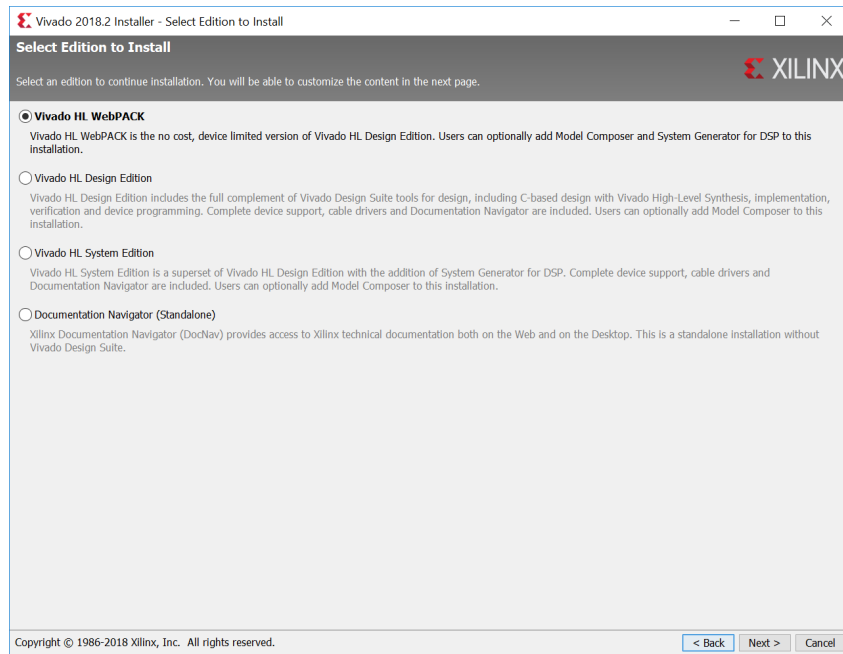
☒ **I Agree**

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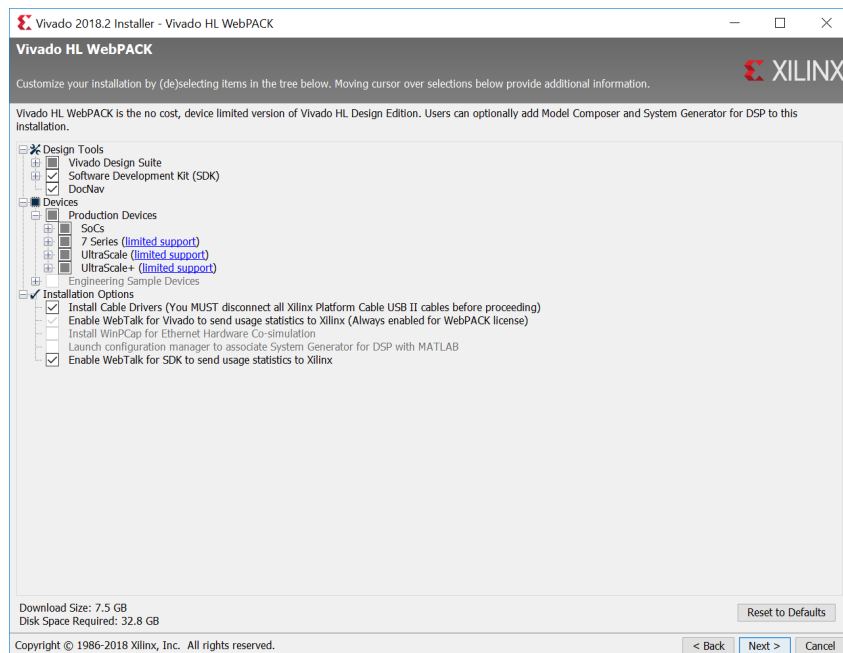
< Back Next > Cancel

1.3 License and Edition Selection

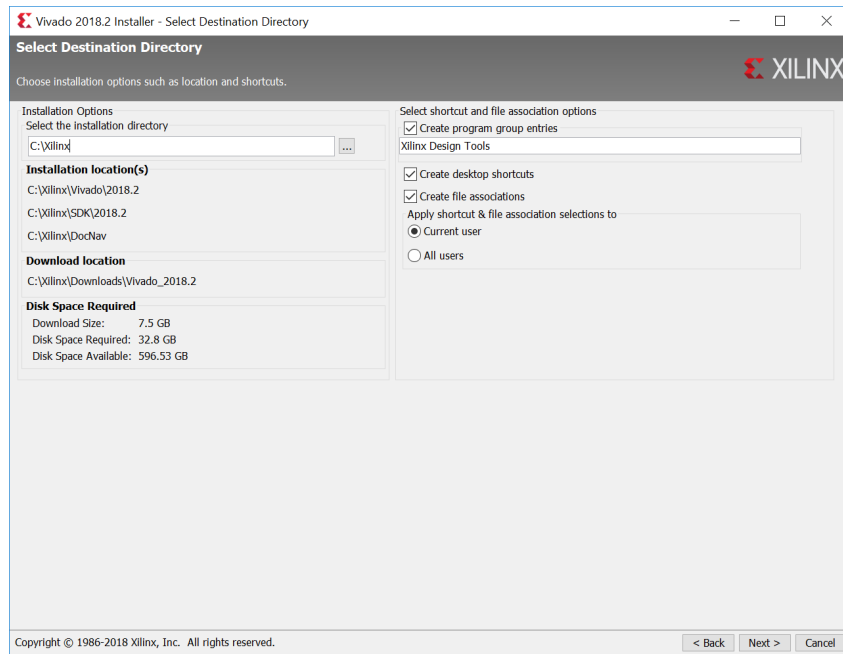
In the next step, you would select which edition of the Vivado tool you want to install. For now, we can install the webpack version which doesn't require any license.



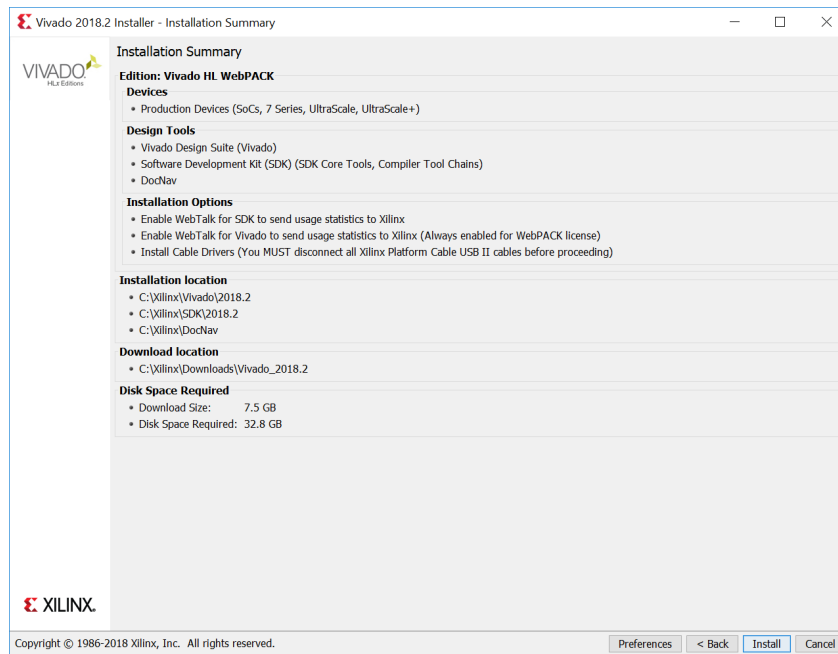
In the Design Tools and Devices, the default options are ok. Click Next.



Select the installation directory. Click Next.

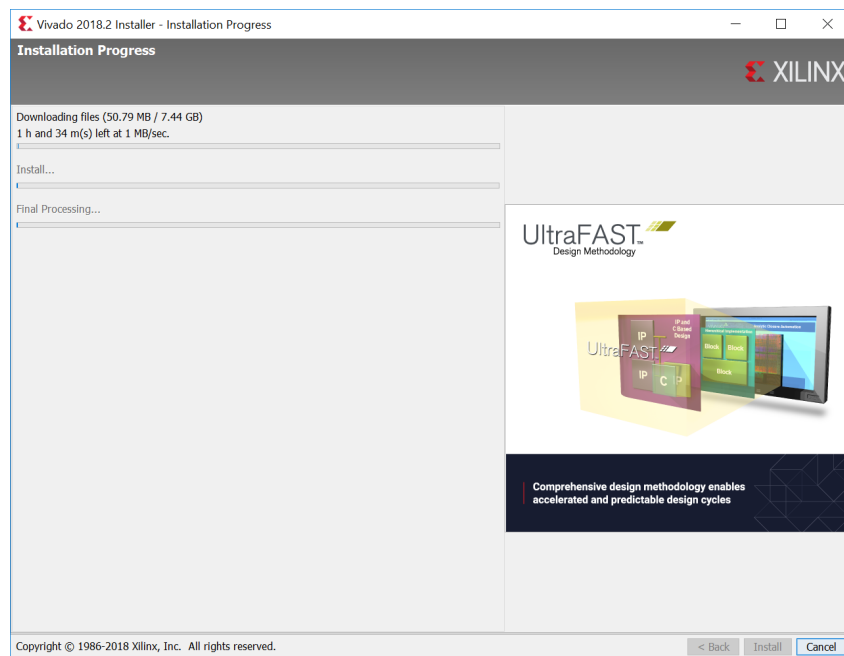


Click Install.



1.4 Download and installation

The final section of the installation will start to download the full image of the Vivado tool which even with a fast internet connection will take a long time. Try to do this part before the class. After downloading the full image the installation process will begin.



Use the Vivado software on the EECS server:

- Connect to one of below Linux Servers
 - zuma.eecs.uci.edu
 - laguna.eecs.uci.edu
 - crystalcove.eecs.uci.edu
 - bondi.eecs.uci.edu
- Open a terminal and login with your username

```
$ssh -X -Y UserName@ServerName
```

- Type below command in the terminal to setup Vivado 2017.1

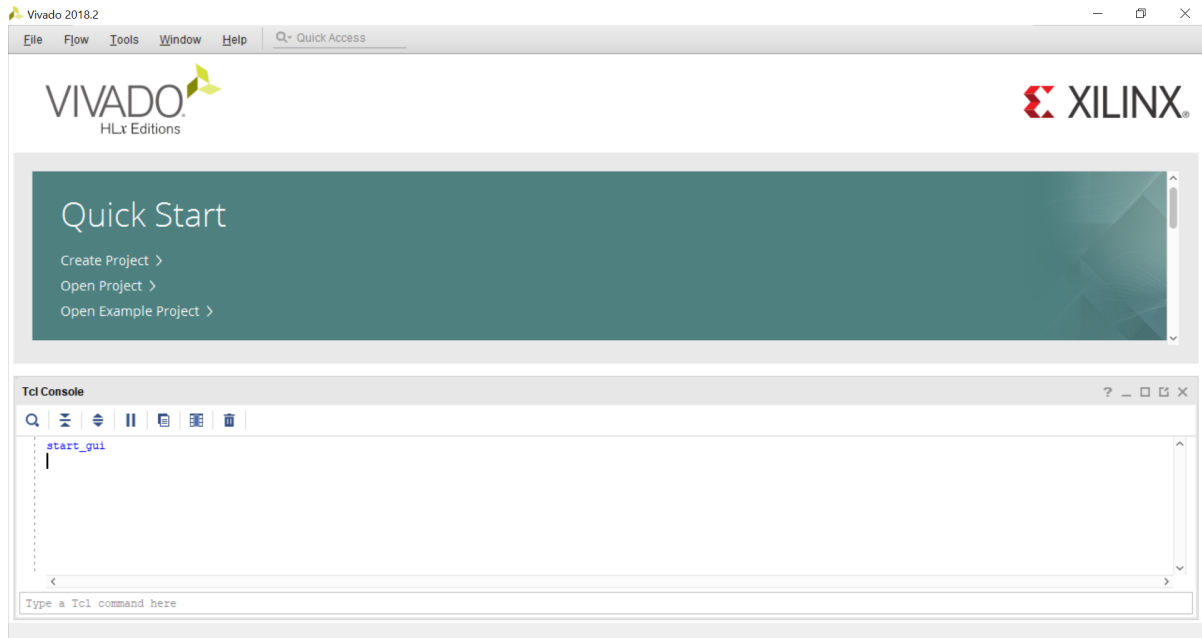
```
$source /eceleb/eceware/xilinx/Vivado/2017.1/settings64-Vivado.csh
```

- Type vivado to launch the application

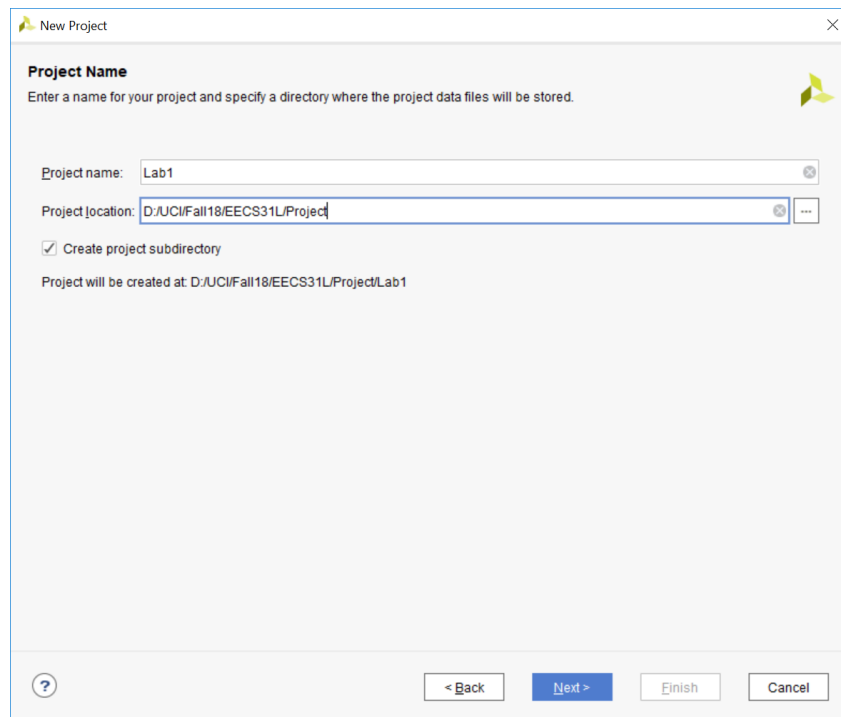
```
$vivado
```

2 Using The Vivado Design Suite

Open Vivado, and select Create Project. Click next.



Your new project needs a name, an address (location on your computer), and a collection of design source codes. This new window asks you to choose a name for your project, and specify the directory that you want to save your project in.



Vivado Naming Conventions:

Project names and source file names must start with a letter ($A - Z, a - z$) and must contain only alphanumeric characters (A-Z, a-z, 0-9) and underscores(_).

This new window asks you to determine the type of your project. Select "RTL Project" option in the Project Type form, and click Next.

New Project

Project Type
Specify the type of project to create.

- ☒ **RTL Project**
You will be able to add sources, create block designs in IP Integrator, generate IP, run RTL analysis, synthesis, implementation, design planning and analysis.
☒ Do not specify sources at this time
- ☐ **Post-synthesis Project**: You will be able to add sources, view device resources, run design analysis, planning and implementation.
☐ Do not specify sources at this time
- ☐ **I/O Planning Project**
Do not specify design sources. You will be able to view part/package resources.
- ☐ **Imported Project**
Create a Vivado project from a Synplify, XST or ISE Project File.
- ☐ **Example Project**
Create a new Vivado project from a predefined template.

? < Back Next > Finish Cancel

Note:

You can define different types of projects in Vivado.

- **RTL Project - RTL to Hardware Validation**
 - Import RTL and IP to process design all the way to hardware
 - Standalone IP - Create reusable preconfigured IP module
 - Device exploration - Empty project to examine device resources
- **Post-synthesis Project - Netlist to Hardware Validation**
 - Third Party synthesis
- **I/O Planning Project - Early I/O Exploration and Assignment**
 - Create I/O port manually or import CSV, RTL, or XDC
 - Can migrate to RTL Project
- **Imported Project - Migrate Project from Synplify, XST, or ISE Project**
 - Imports sources and compilation order
 - No synthesis or implementation result imported
 - No tool setting migrated
- **Example project**
 - Using Vivado examples

In the Default Part dialog box, you should select the family and part number of the FPGA you want to implement your code on. Since through this course we are not going to work with any FPGA's, you may skip this step and click Next.

Default Part
Choose a default Xilinx part or board for your project. This can be changed later.

Parts | Boards

Reset All Filters

Category: All Package: All Temperature: All

Family: All Speed: All

Search:

Part	I/O Pin Count	Available IOBs	LUT Elements	FlipFlops	Block RAMs	Ultra RAMs	DSPs
xc7k70tfgv676-1	676	300	41000	82000	135	0	240
xc7k70tfgv484-3	484	285	41000	82000	135	0	240
xc7k70tfgv484-2	484	285	41000	82000	135	0	240
xc7k70tfgv484-2L	484	285	41000	82000	135	0	240
xc7k70tfgv484-1	484	285	41000	82000	135	0	240
xc7k70tfgv676-3	676	300	41000	82000	135	0	240
xc7k70tfgv676-2	676	300	41000	82000	135	0	240
xc7k70tfgv676-2L	676	300	41000	82000	135	0	240
xc7k70tfgv676-1	676	300	41000	82000	135	0	240
xc7k70tfgv484-2L	484	285	41000	82000	135	0	240

< Back Next > Finish Cancel

Review the project summary in the New Project Summary dialog box before clicking Finish to create the project.

New Project Summary

A new RTL project named 'Lab1' will be created.

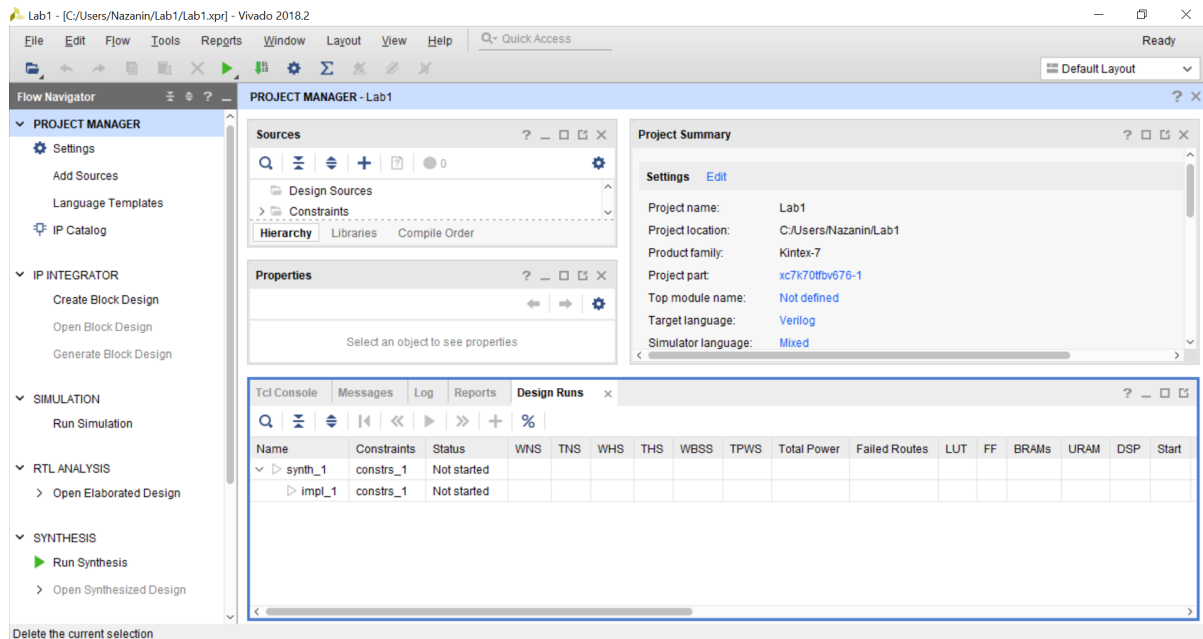
The default part and product family for the new project:

- Default Part: xc7k70tfgv676-1
- Product: Kintex-7
- Family: Kintex-7
- Package: fbg676
- Speed Grade: -1

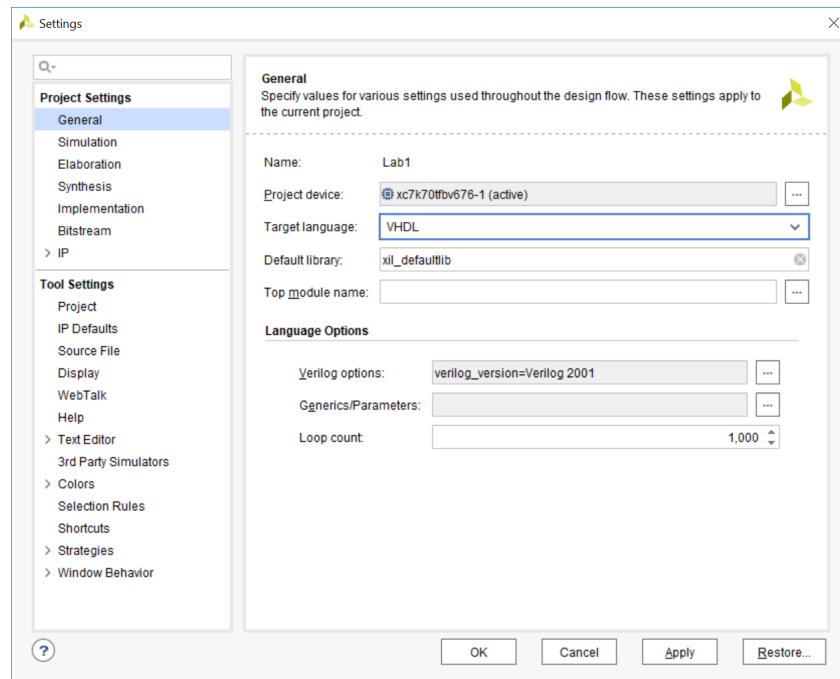
To create the project, click Finish

< Back Next > Finish Cancel

You see different windows in the Vivado software: Flow Navigator, Sources, Project summary, and Design Runs console.



The Project summary will give you the status of your project. Through this course we are going to use VHDL language for hardware design. So, go to the Project Summary window and click Edit. Then change the target language to VHDL.



Click Apply. Click Ok. Now in your Project Summary window, the target language should be VHDL.