Vivado Tool Installation

Xilinx Vivado Tools are best to be used with the **Xilinx Basys3 Boards**. Vivado Design Suite includes the complete Design toolchain for FPGA development. But due to its large size, we will not be using it for the CTF event. There is a subset of this tool called the **Vivado Lab Edition**, which would suffice our requirements for the event.

If some of you are already having Vivado Design Suite installed on their laptops, or are interested in working with FPGA design in the longer run, you can proceed with it. However, note that using Vivado Design Suite instead of Vivado Lab Edition will not make any difference (in terms of your capabilities to control the board) for the event.

You can find detailed steps for Vivado Lab Edition installation below :
(The steps remain the same for Vivado Design Suite installation, with an additional step of adding board files corresponding to the Basys3 board)

For Windows Users:

Installing Vivado Lab Edition
1. Visit the Xilinx Downloads site - here
2. Download "Xilinx Unified Installer 2020.3: Windows Self Extracting Web Installer"
3. You might need to create a Xilinx account if you don't already have one
4. Run the Xilinx unified installer and proceed with installation
5. Continue with the same version (as the latest one might be unstable)
6. Enter your Email id and Password
7. Agree to the terms and conditions
8. Choose "Lab Edition"
9. Proceed with the default settings (Make sure that the "Install Cable Drivers" checkbox is ticked and no USB cable is connected with the Laptop while this process continues)
10. Select the location for the files to be stored and proceed with the installation

Installing cable drivers
The installer takes care of this part, for Windows

Launching Vivado Lab
If the installation is successful, you will get an icon for the Vivado Lab Edition
Double click it to launch the tool

For Linux Users:

Installing Vivado Lab Edition
1. Visit the Xilinx Downloads site - here
2. Download "Xilinx Unified Installer 2020.3: Linux Self Extracting Web Installer"
3. You might need to create a Xilinx account if you don't already have one
4. Install the following dependencies

```
sudo apt-get update
apt-get install build-essential libftdi-dev libusb-dev python vim usbutils
libavahi-common3 libavahi-client3 libxext6 libfontconfig1 libxrender1 libxtst6
libxi6 libgconf-2-4
```

5. Change the permissions of the bin file and install

```
chmod +x Xilinx_Unified_2020.3_0407_2214_Lin64.bin
sudo ./Xilinx_Unified_2020.3_0407_2214_Lin64.bin
```

6. Continue with the same version for installation
7. Enter your Email id and Password
8. Agree to the terms and conditions
9. Choose "Lab Edition"
10. Keep the default settings
11. Specify the folder and proceed with the installation

Installing cable drivers
Move to the following directory present inside the Vivado_Lab installation directory

```
cd
/tools/Xilinx/Vivado_Lab/2020.3/data/xicom/cable_drivers/lin64/install_script/in
stall_drivers
sudo ./install_drivers
```

Launching Vivado Lab
Create a directory to keep the log files and other folder created by Vivado
From this directory, run the following commands

```
source /tools/Xilinx/Vivado_Lab/2020.3/settings64.sh
vivado_lab -nojournal -nolog &
```

If you face any issue with the installation, and you are unable to find a resolution on the internet, do let us know here (on our Discord server). Make sure to post the queries in the **FPGAworks** space only.