Simulation Guide

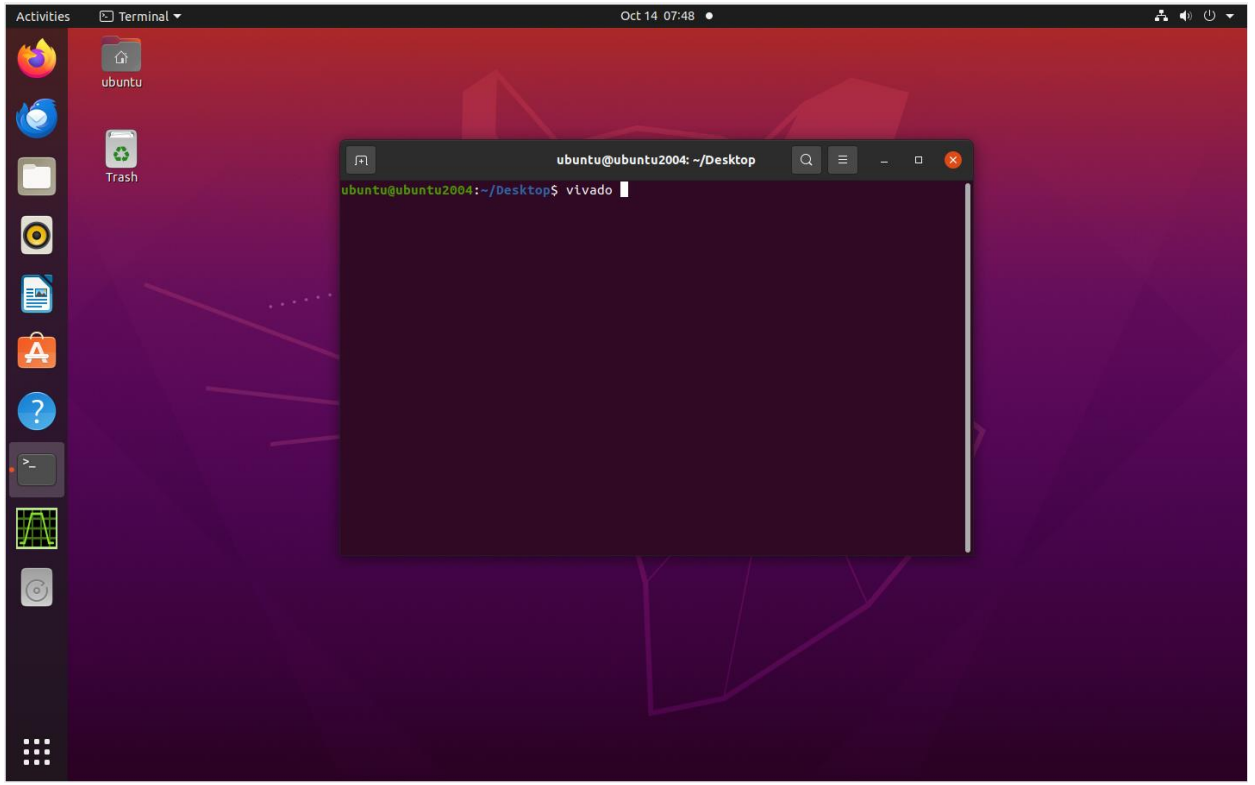
SOC Design

Simulation Guide

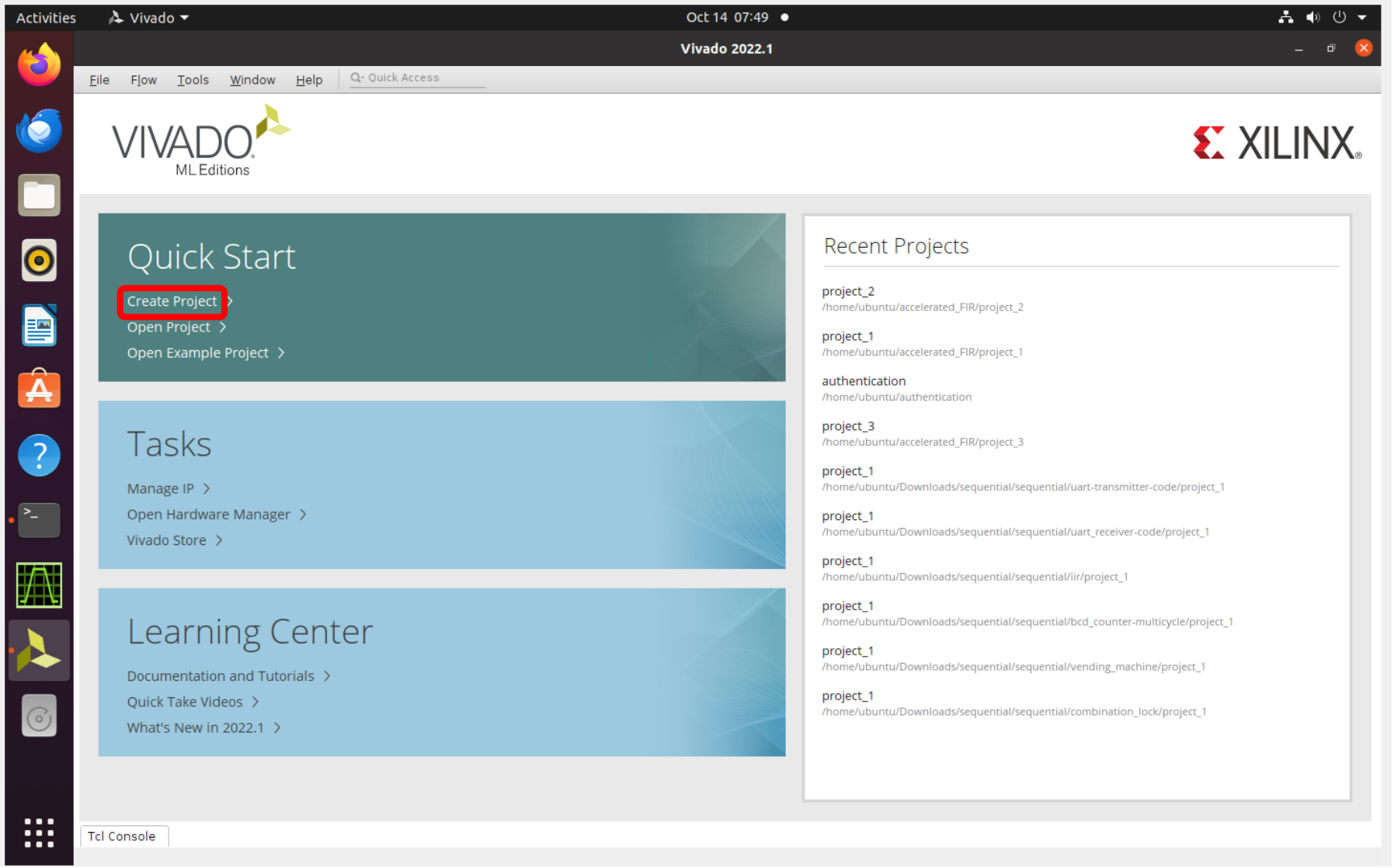
- **There are two methods for simulation**
  - **Vivado GUI**
  - **Makefile (only work on linux system)**
- You only need to choose one method for simulation.

1. Implement Flow (Vivado GUI)

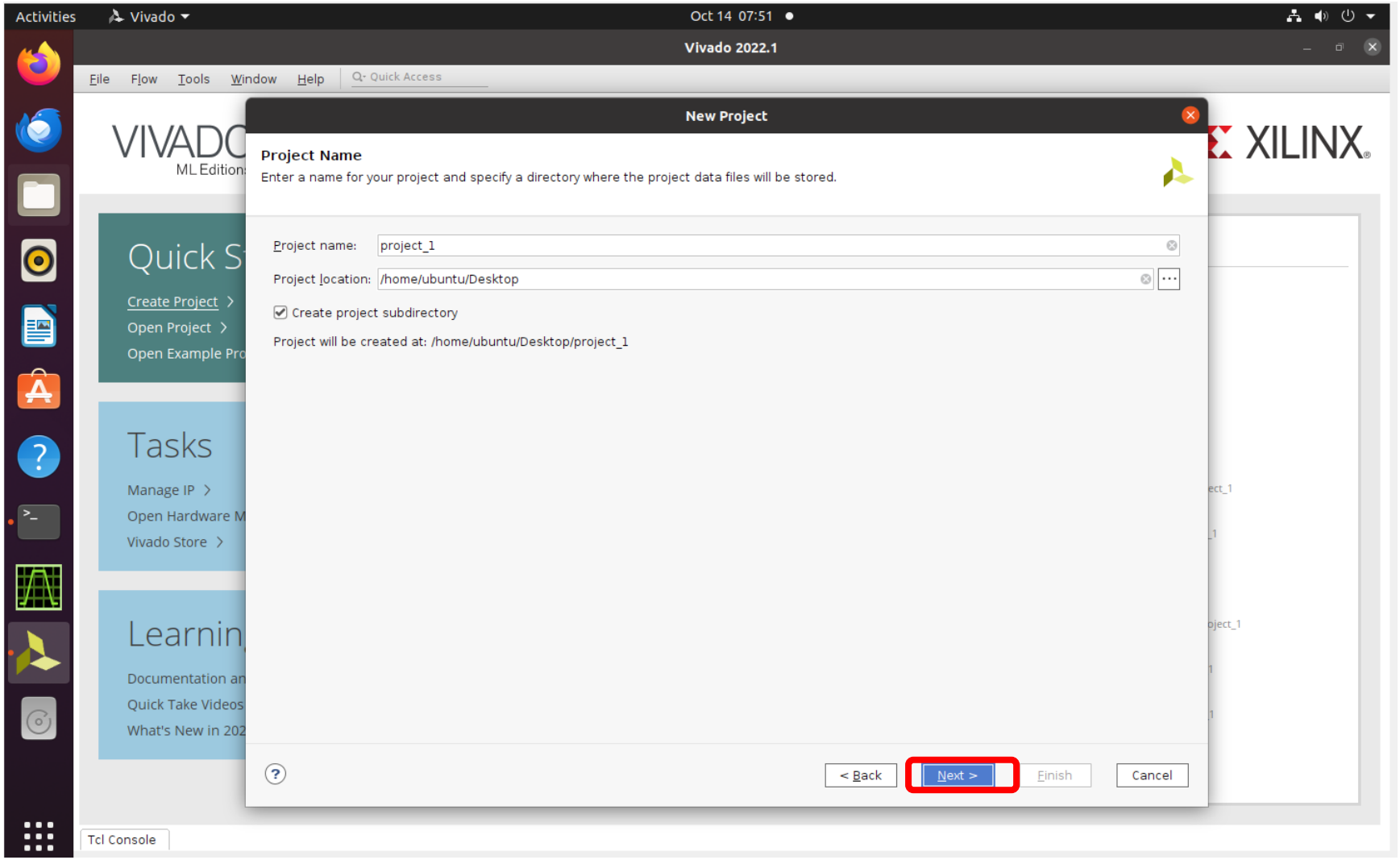
- **1.1. Vivado**
  - 【施作環境為Windows/ Linux】
  - 啟動Vivado



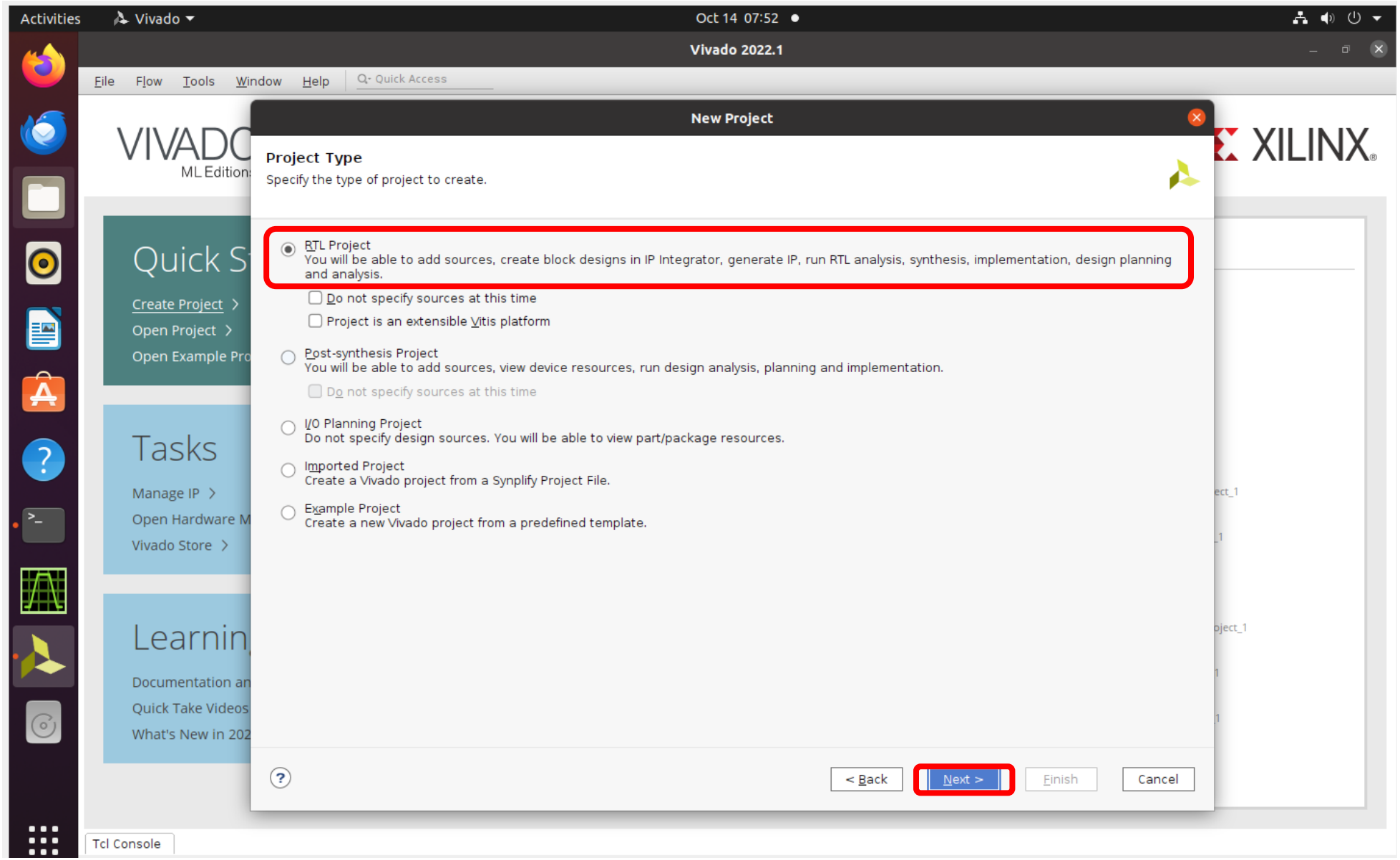
- **1.1.1 Create Project**



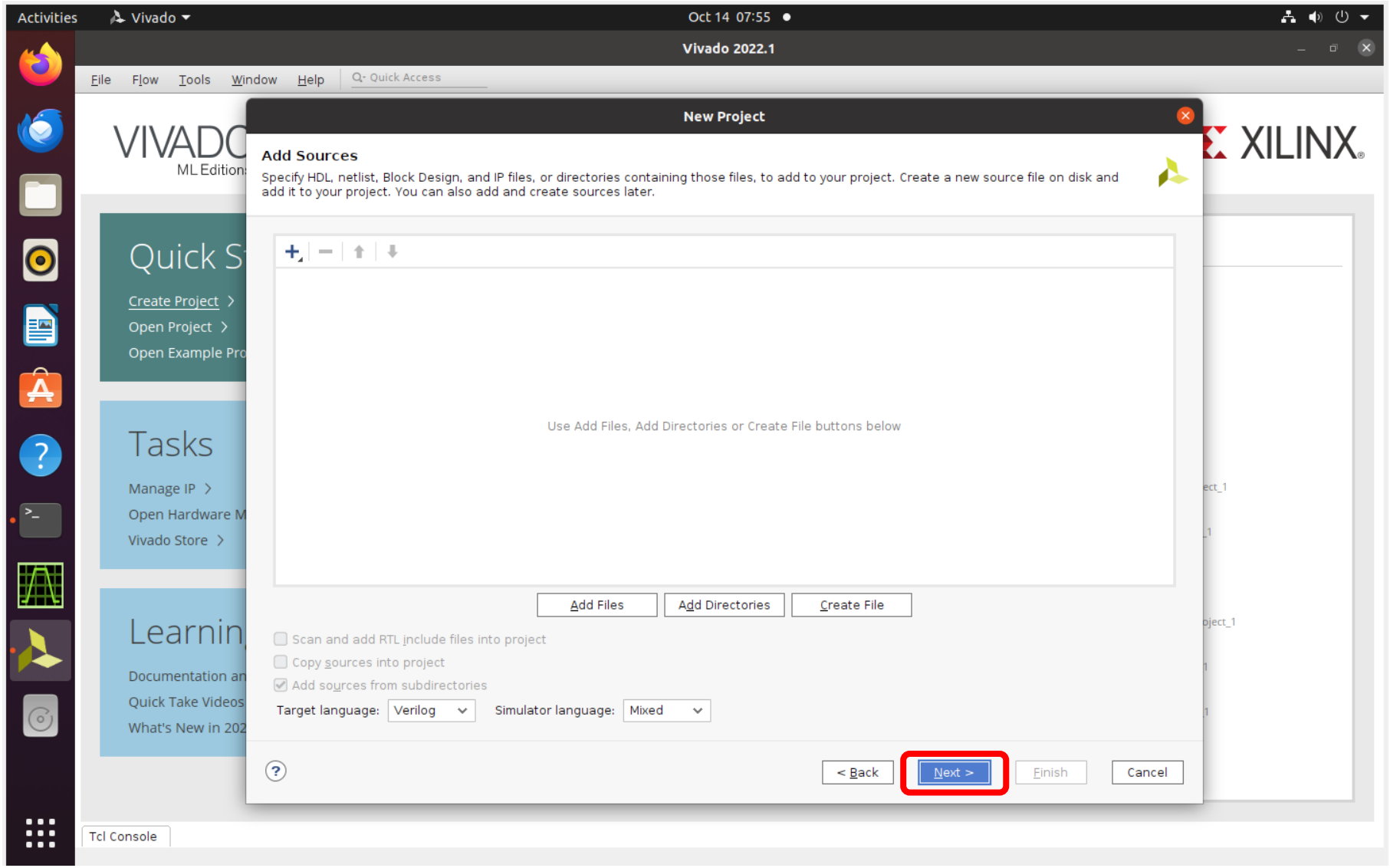
- **1.1.2 Follow the step to create the project**



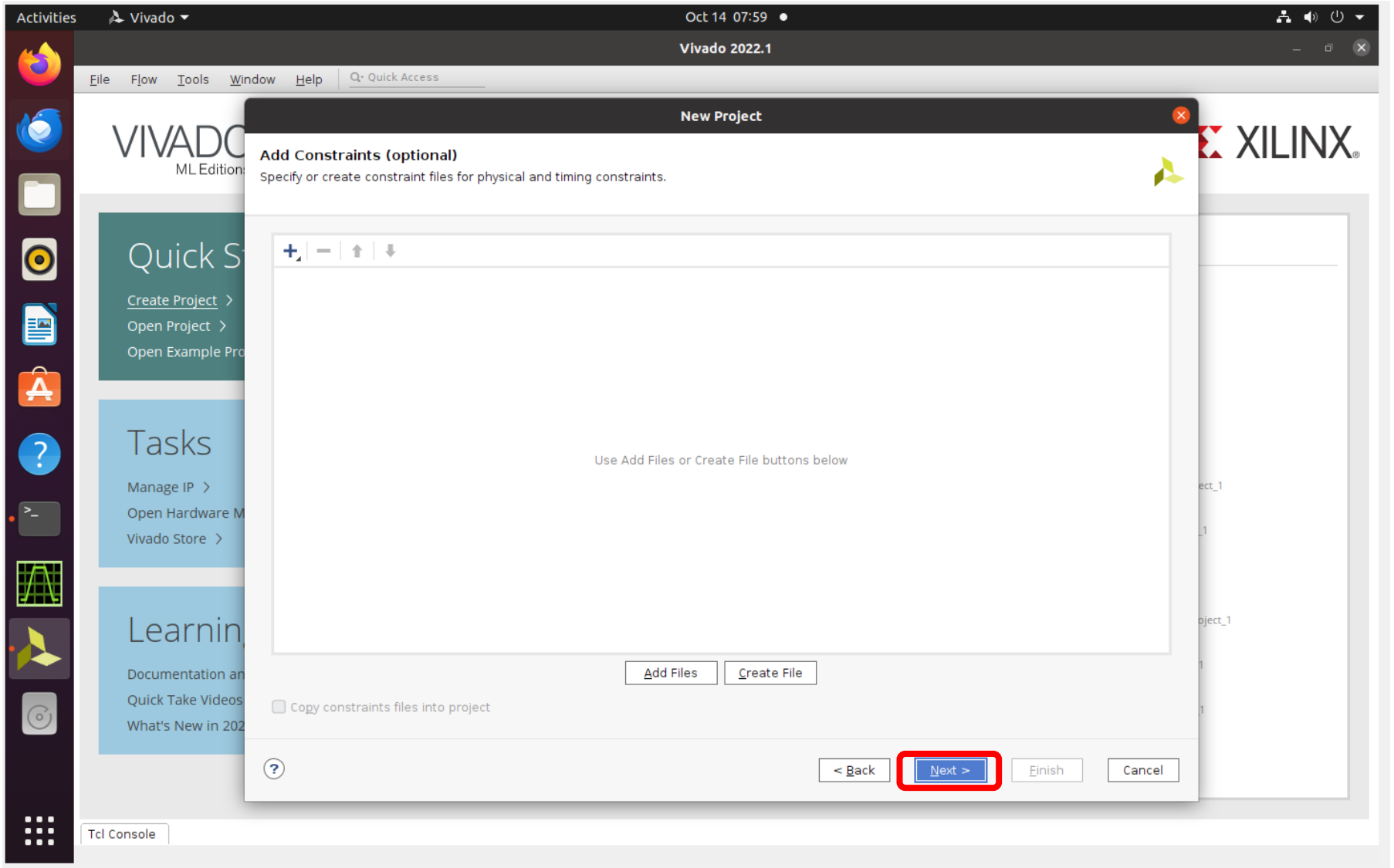
• 1.1.3 Select RTL Project



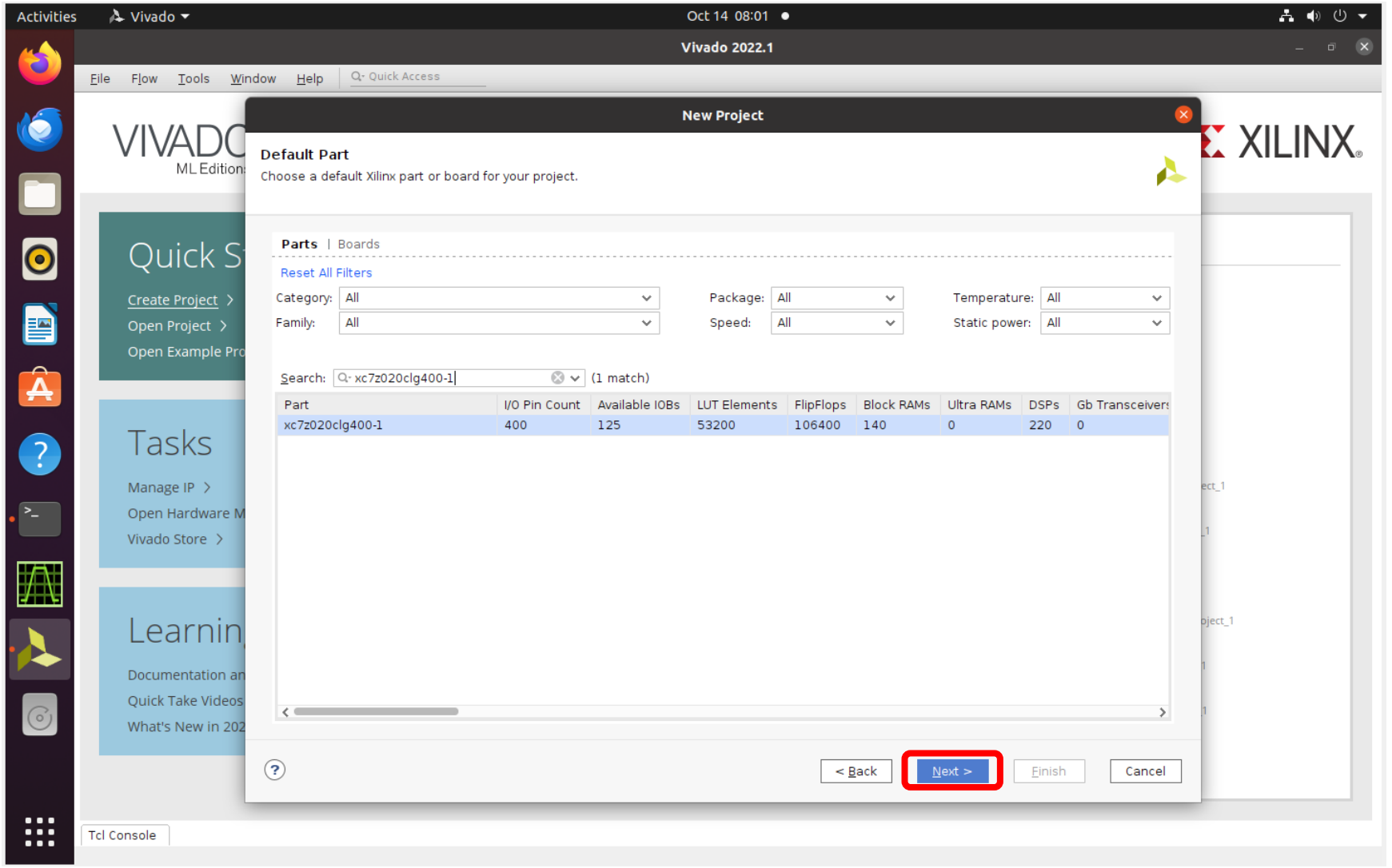
- **1.1.4 Add the design file**
  - 【如果還沒進行設計，可直接點擊next】



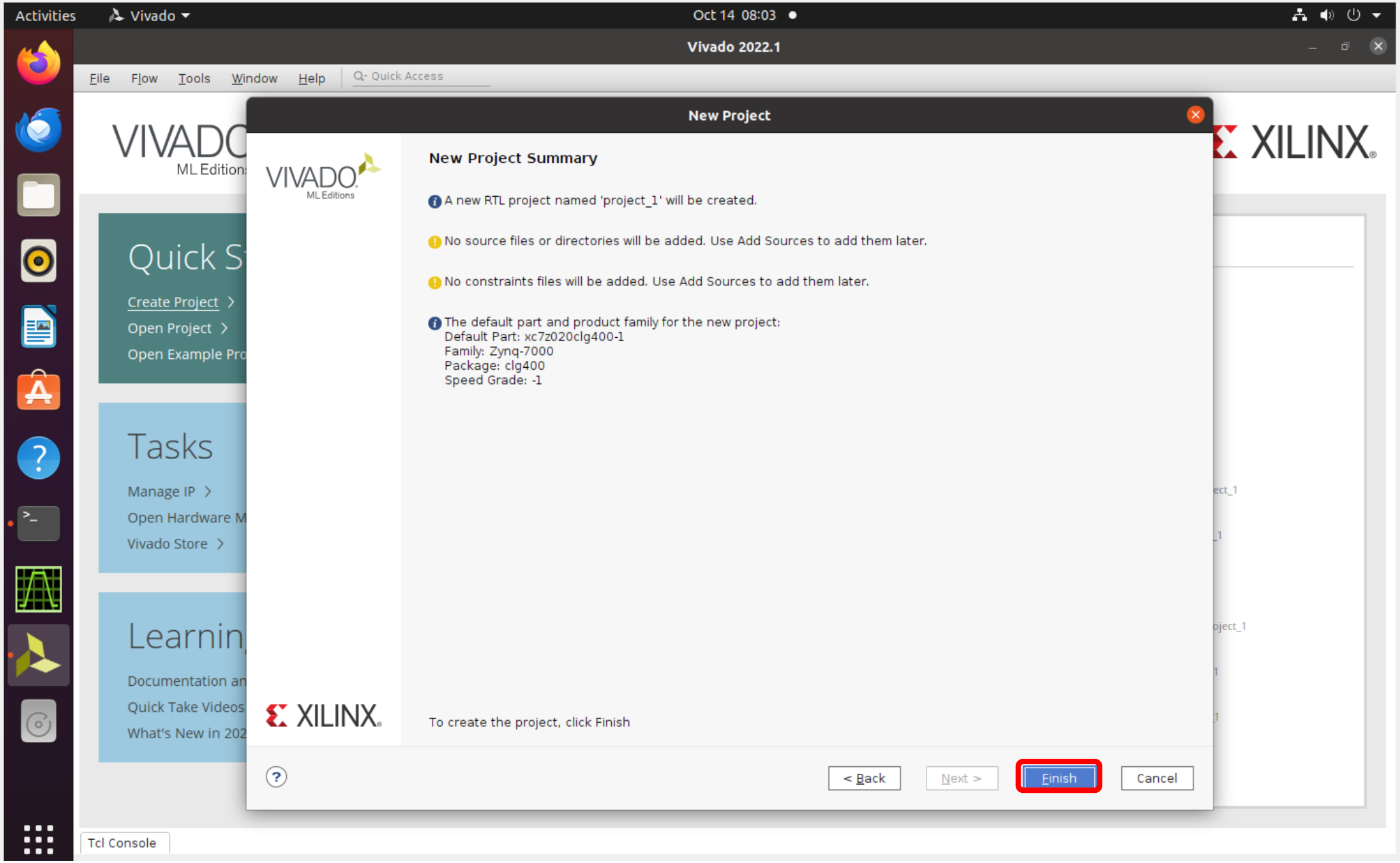
- **1.1.5 Add the constraints file**
  - **【如果沒有constraints file，可直接點擊next】**



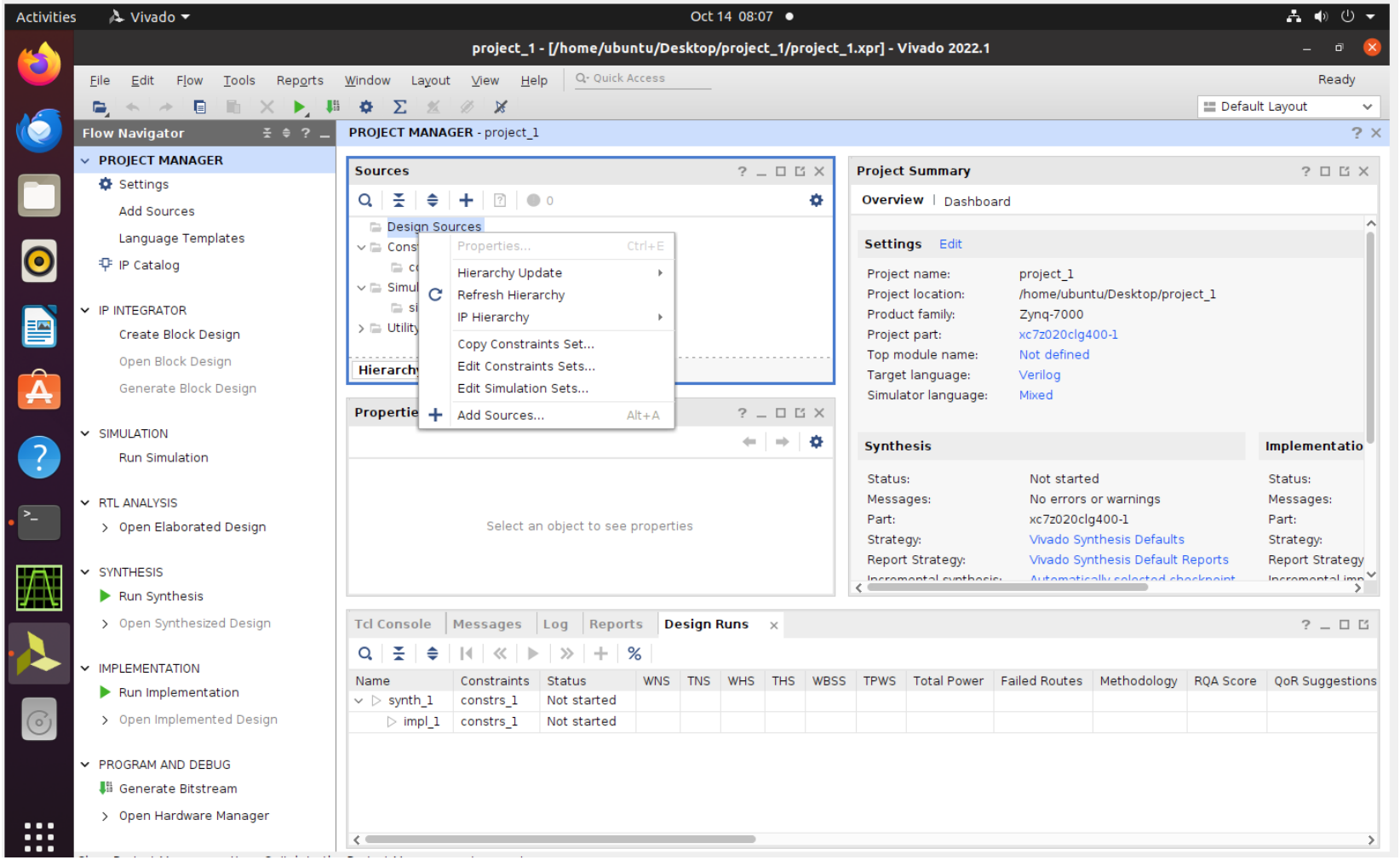
- **1.1.6 Select FPGA board**
  - **【根據需求選取FPGA板，這裡選用pynq-z2】**



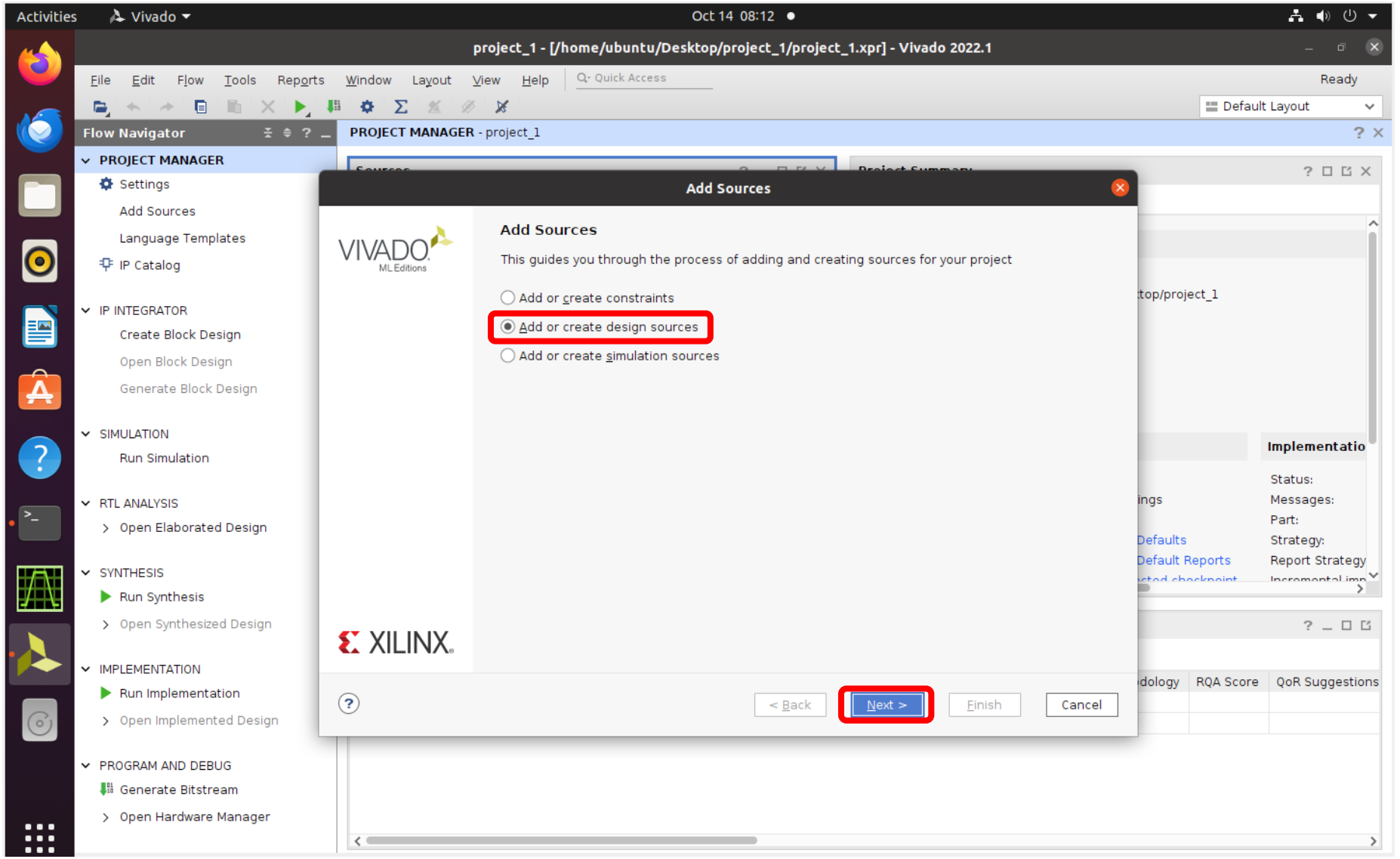
- **1.1.7 Create the project**



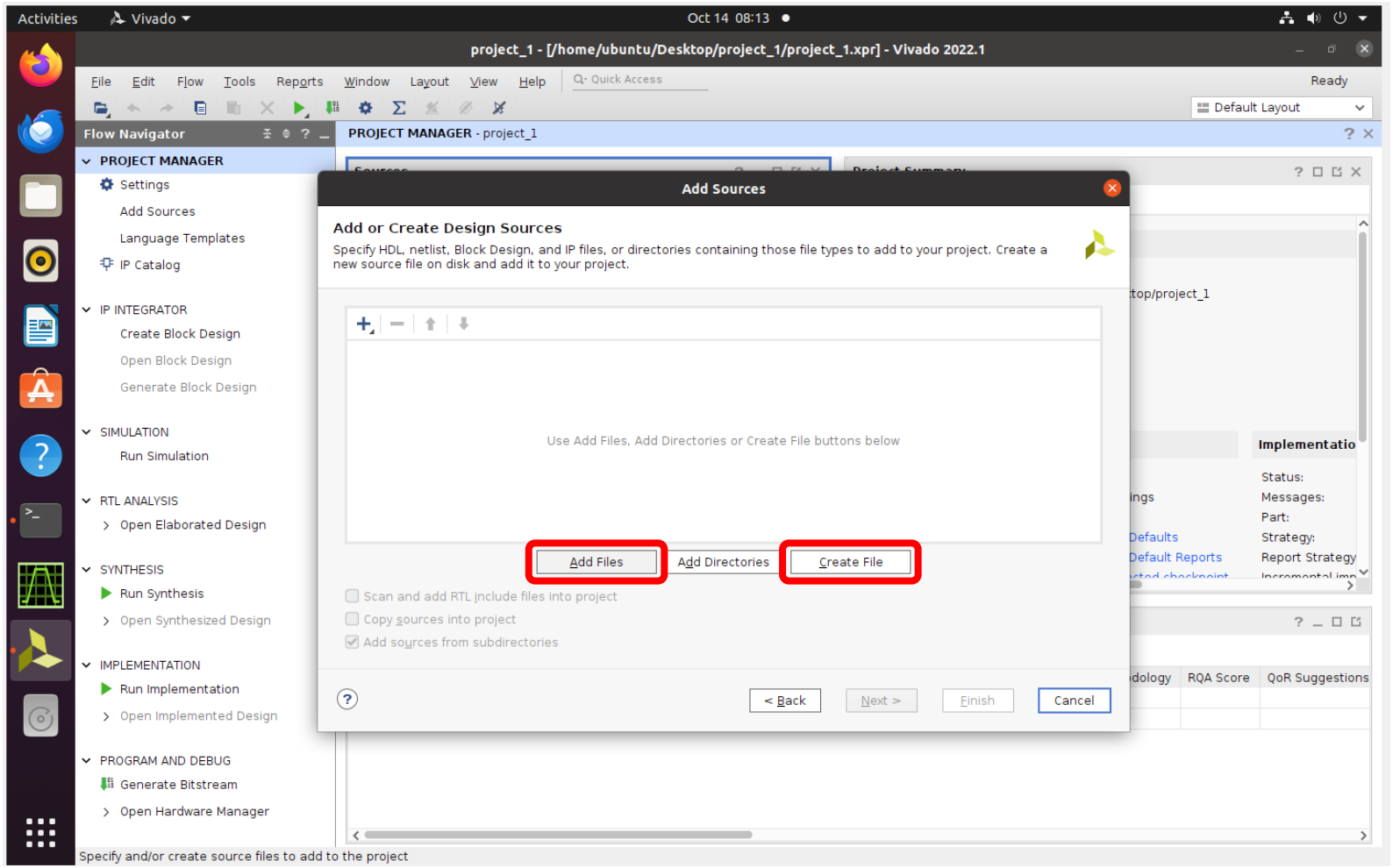
- # 1.2 Add Design Sources
- # 1.2.1 Add Sources
  - ## 【右鍵點擊Design Sources，選擇Add Sources 】



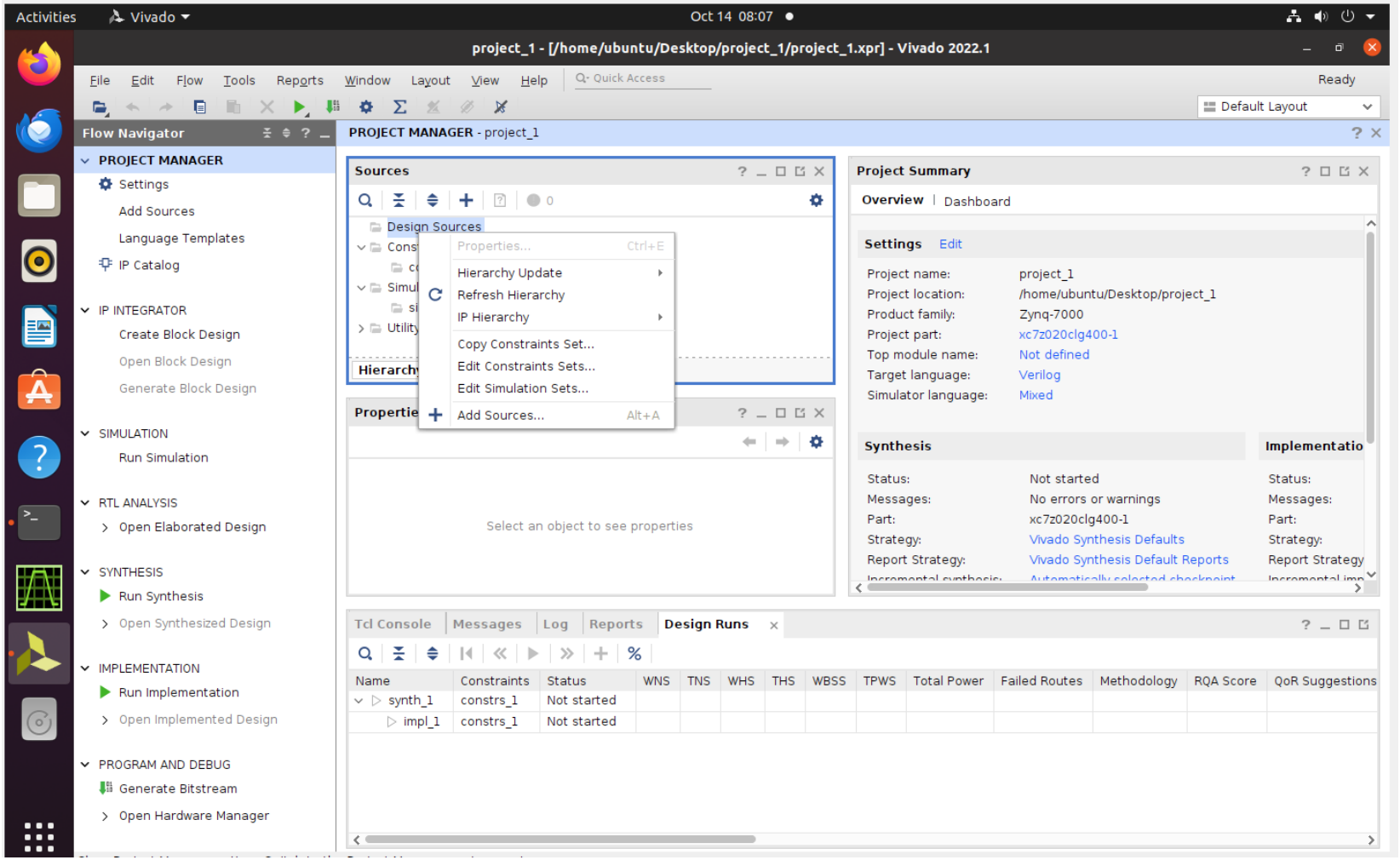
- **1.2.2 Add or Create Design Source**
  - **【選取Add or Create Design Sources】**



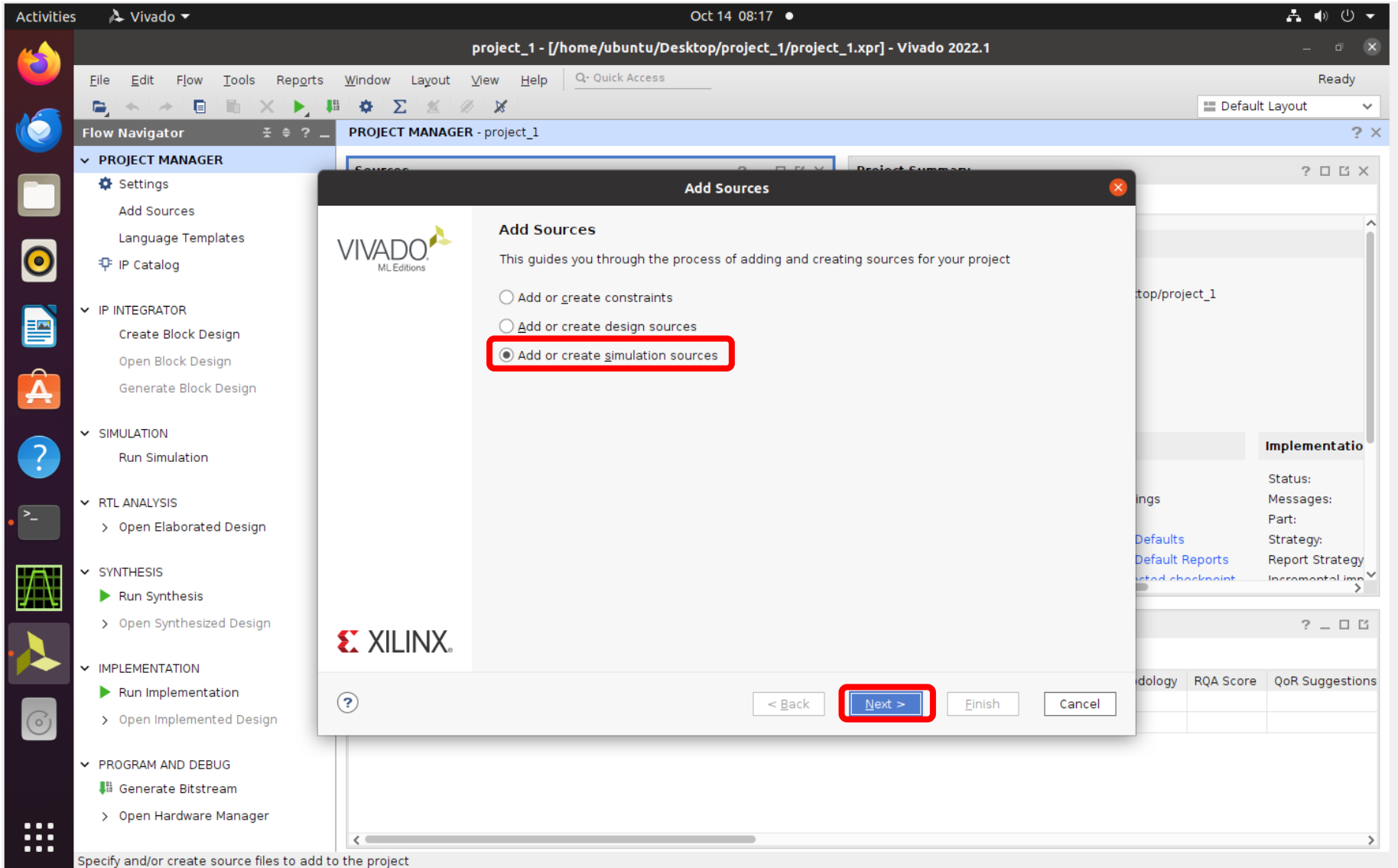
- **1.2.3 Add Files**
  - 【如果已有設計檔，選取Add files】
  - 【如果沒有設計檔，選取Create file】



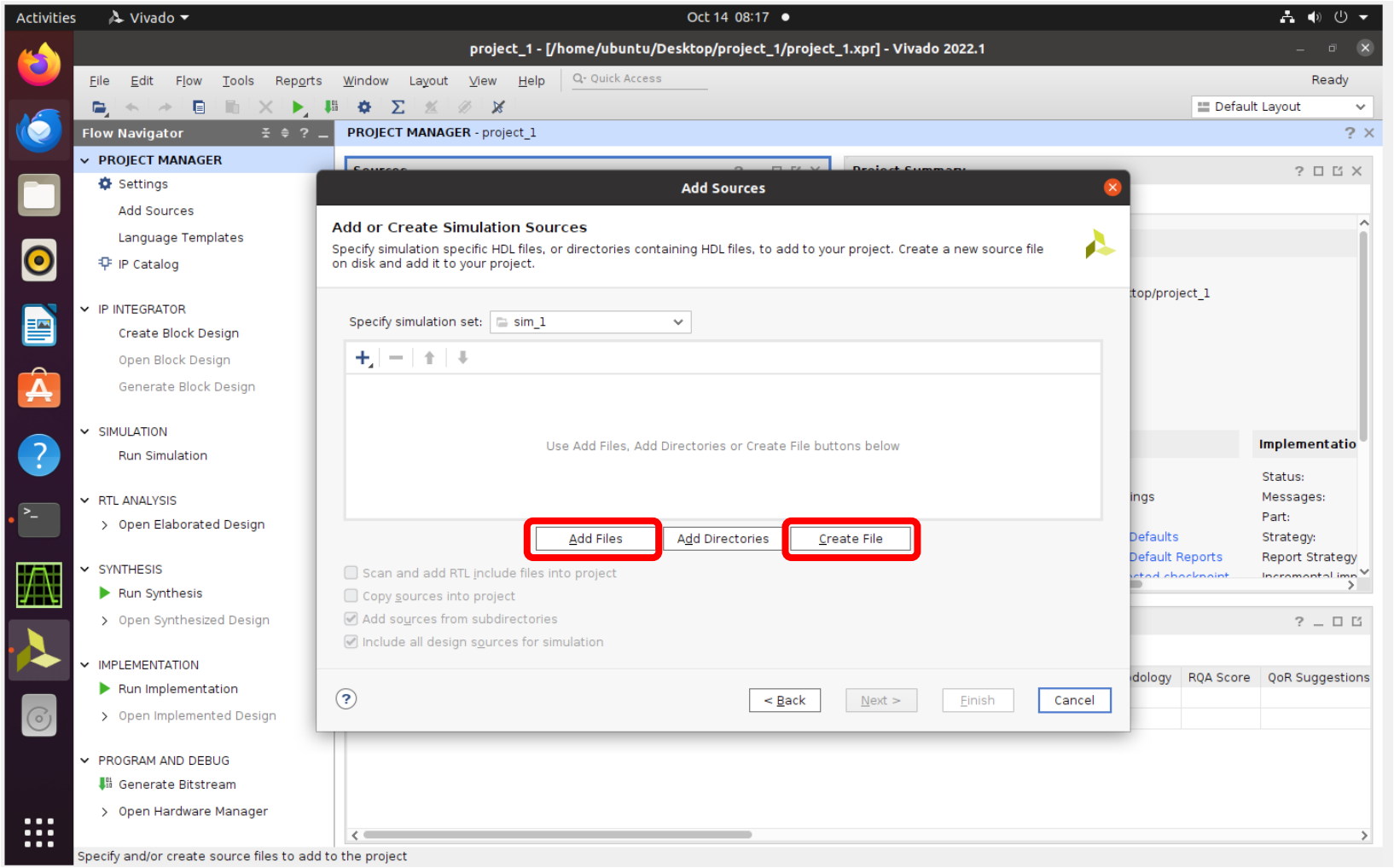
- **1.3 Add Testbench**
- **1.3.1 Add Sources**
  - **【右鍵點擊Design Sources，選擇Add Sources 】**



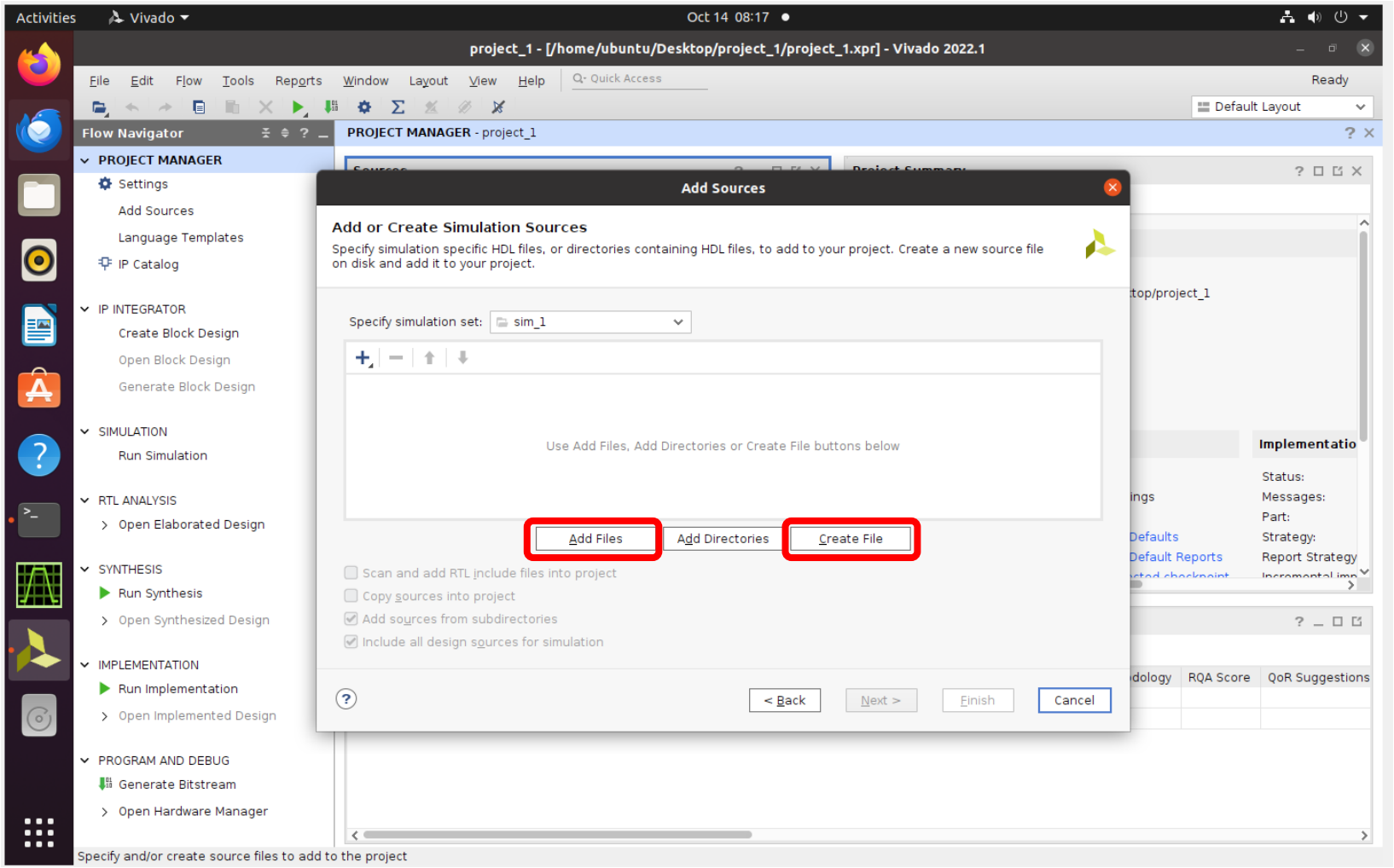
- **1.3.2 Add or Create Simulation Source**
  - **【選取Add or Create Simulation Sources】**



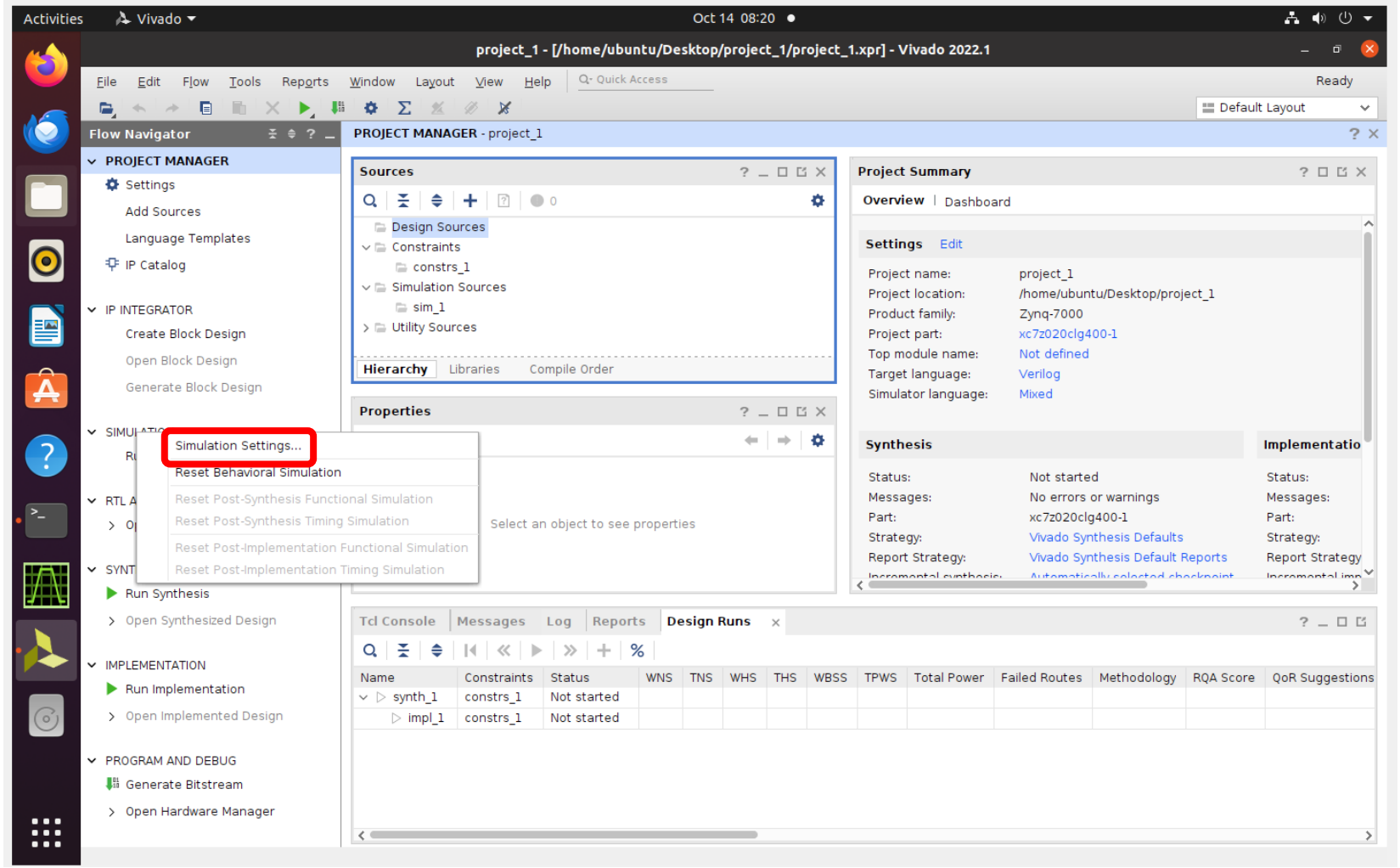
- **1.3.3 Add Files**
  - 【如果已有Testbench，選取Add files】
  - 【如果沒有Testbench，選取Create file】



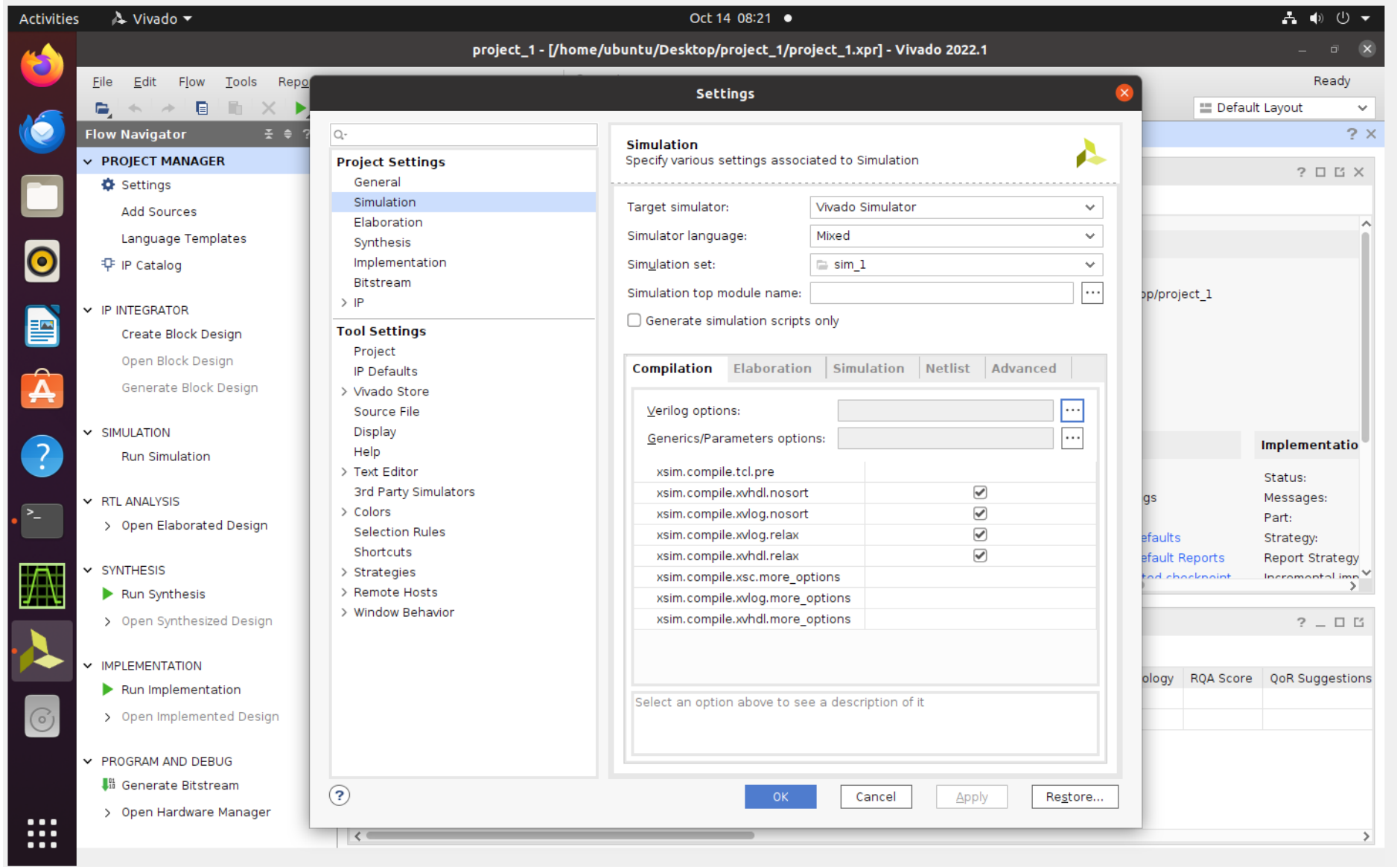
- **1.4 Add Files**
  - 【如果已有Testbench，選取Add files】
  - 【如果沒有Testbench，選取Create file】



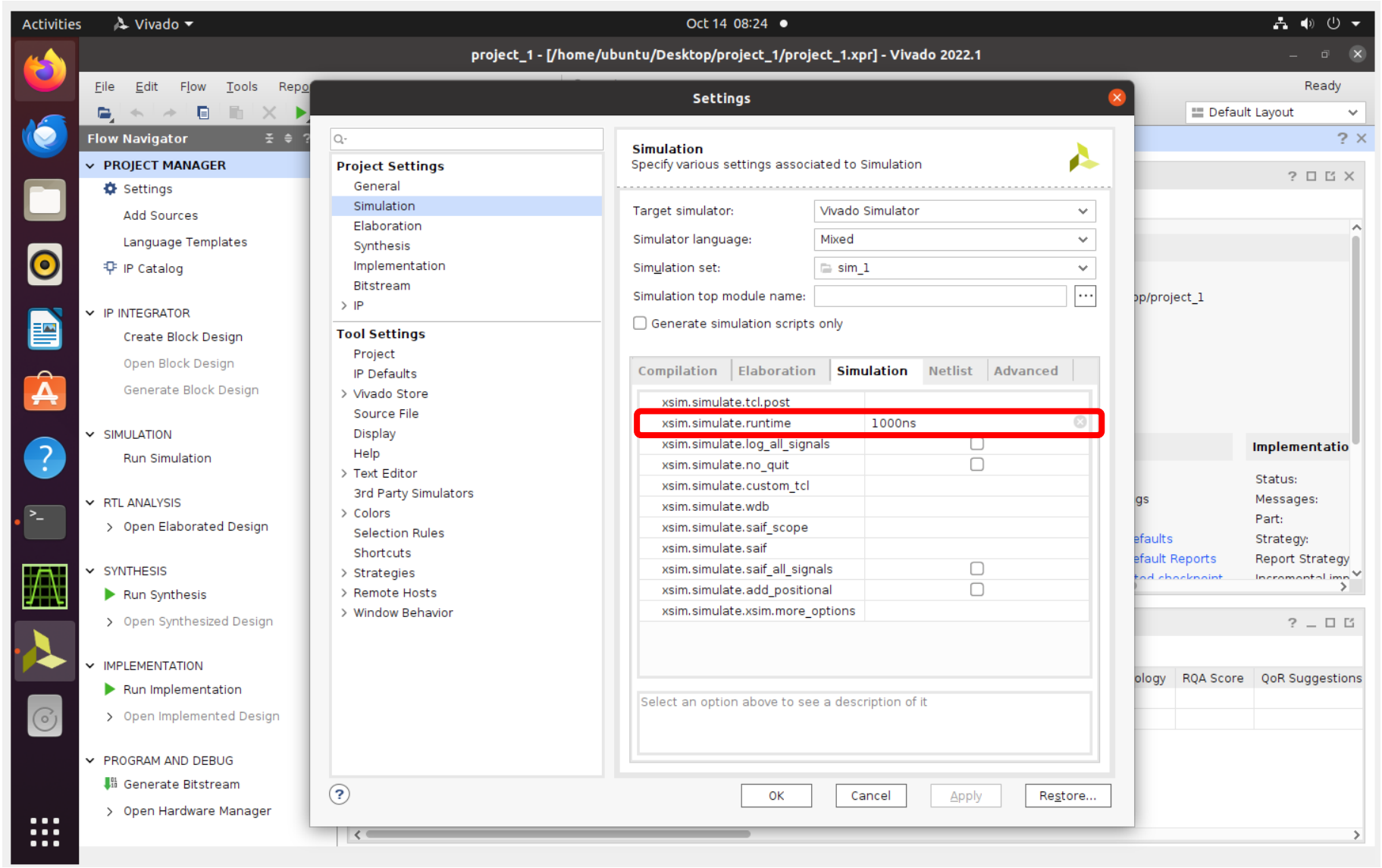
- 1.4 Simulation Settings
- 1.4.1 Simulation Settings
  - 【右鍵點擊Simulation，選擇Simulation Settings】



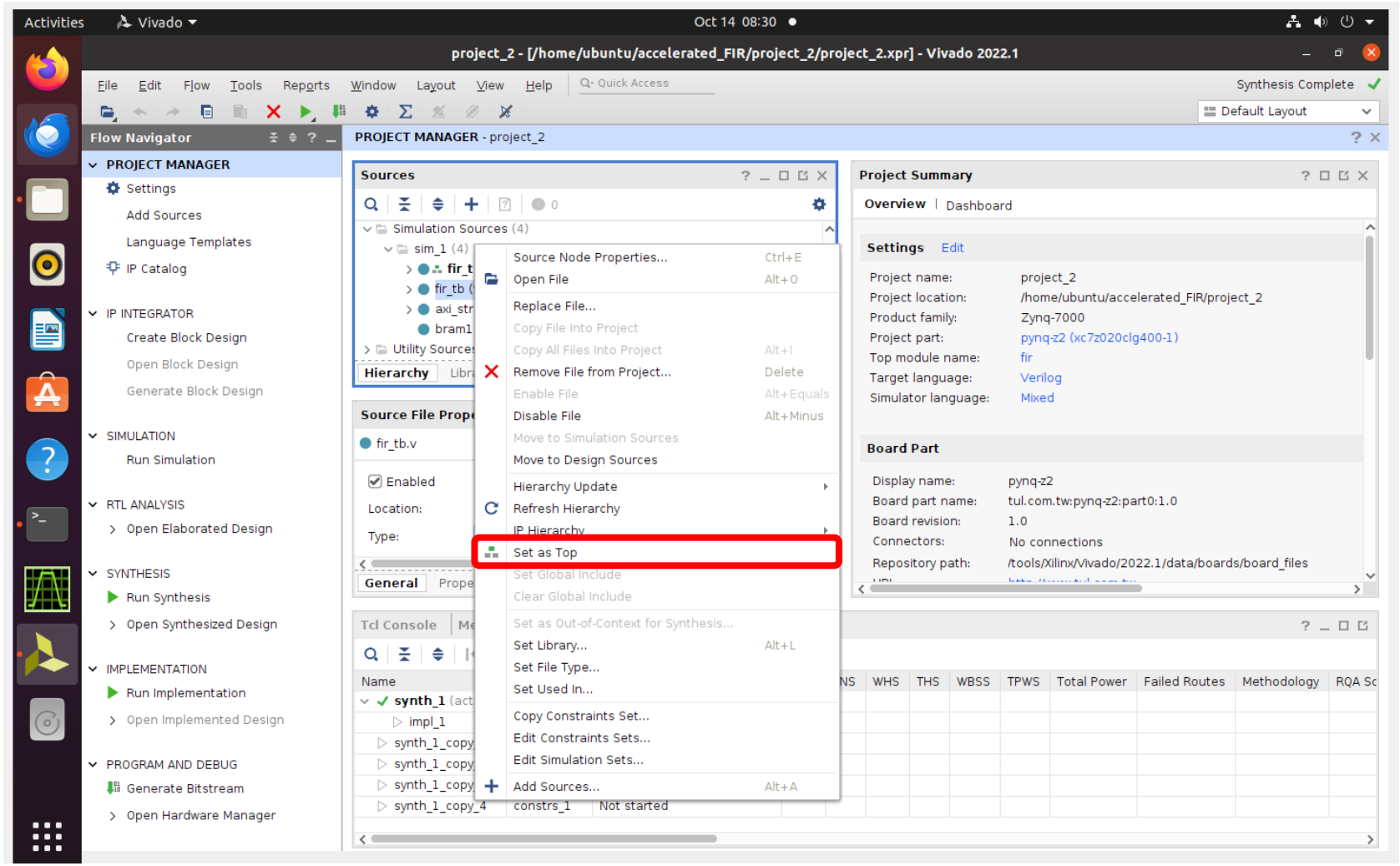
- # 1.4.2 Modify Simulation Settings
  - ## 【根據testbench的需求調整Simulation settings 】



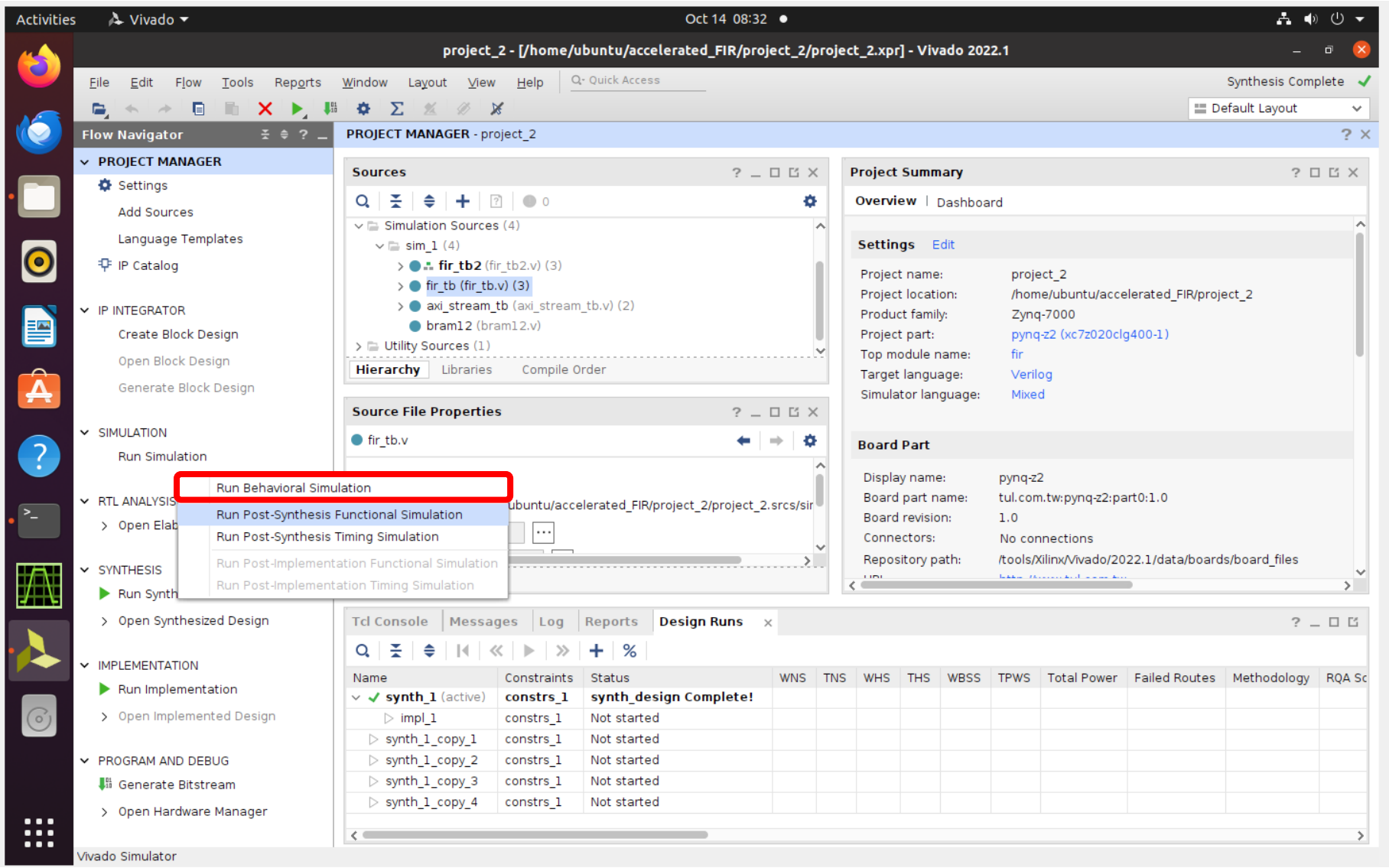
- **1.4.3 Modify Simulation runtime**
  - **【在Lab3中，可能需要調整simulation runtime 】**



- # 1.5 Run Simulation
- ## 1.5.1 Set the testbench file as top
  - 【右鍵點擊testbench，點擊Set as Top】

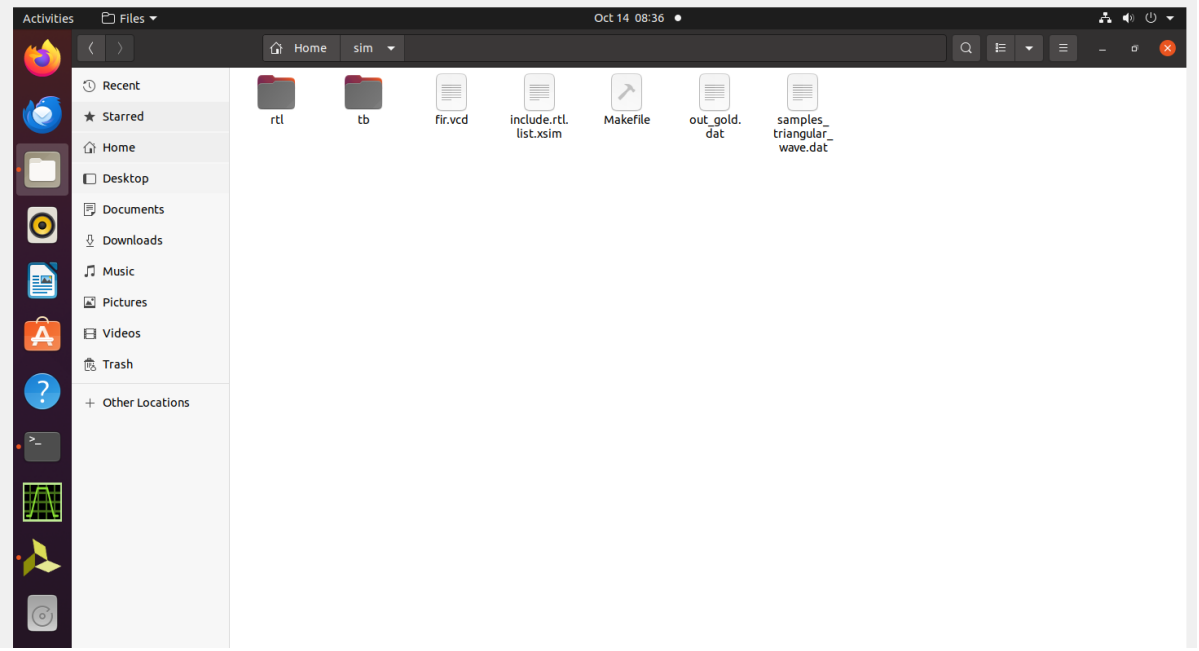


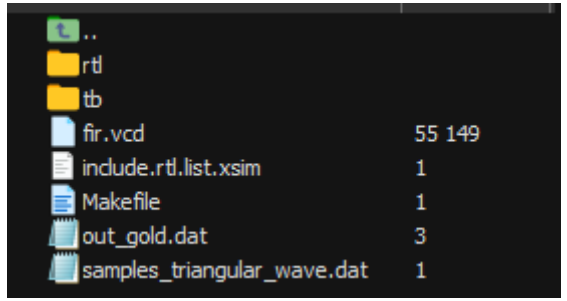
- **1.5.2 Run Simulation**
  - **【左鍵點擊Run Simulation，點擊Run Behavioral Simulation】**



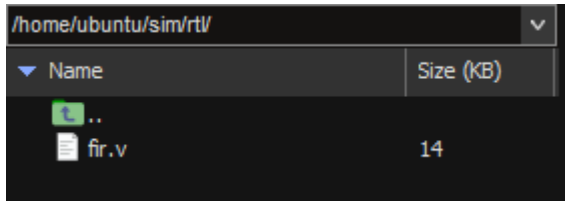
2. Implement Flow (Makefile)

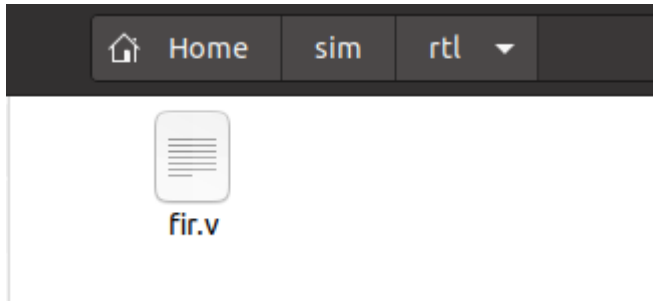
- **2.1. Makefile**
  - 【施作環境為 Linux】
  - 可以透過MobaXterm或是Ubuntu執行



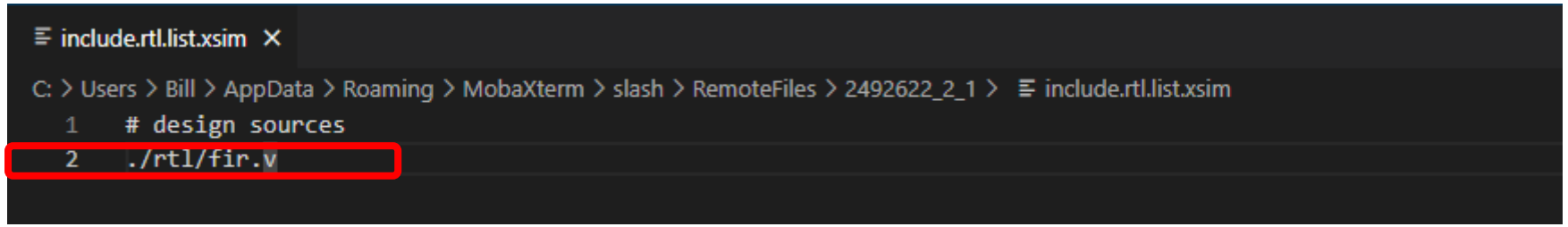


- **2.2 Add the design sources to rtl folder**





- **2.3 Add the design sources to include.rtl.list.xsim**
  - **【將設計檔的路徑寫入include.rtl.list.xsim】**



- **2.4 Run the makefile**
  - **Under the directory of Makefile**
  - **Command make**