

XDC Guide

9/23/2021

 **NTHU Logic Design Laboratory (Fall. 2021)** 

By Prof. Chun-Yi Lee

Agenda

Introduction

Create a new XDC file

Add a existing XDC file

Edit the XDC file

Agenda

Introduction

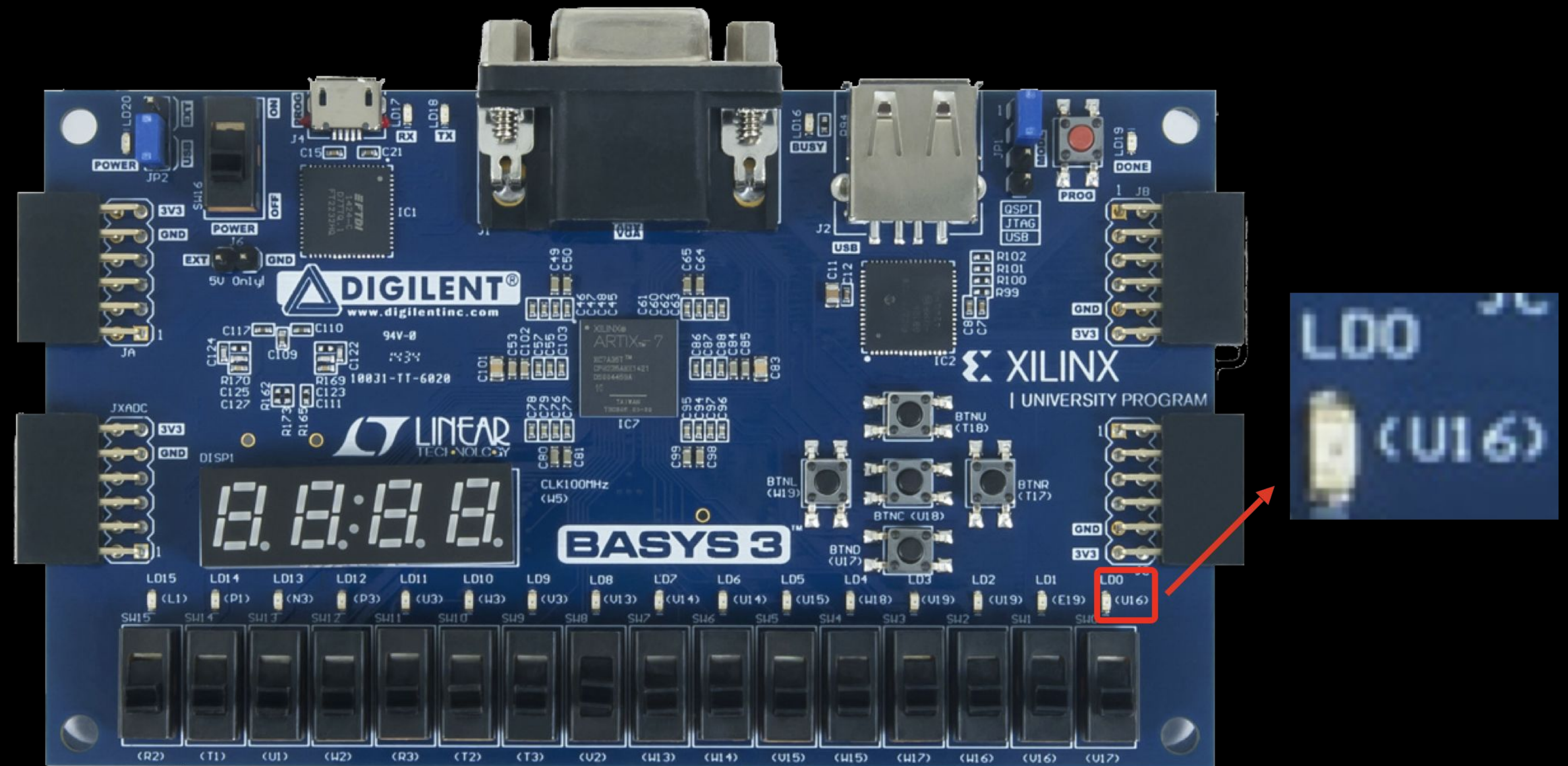
Create a new XDC file

Add a existing XDC file

Edit the XDC file

Introduction (1/3)

- XDC maps module I/O signals to the I/O ports on the FPGA board.



Introduction (2/3)

```
set property PACKAGE_PIN /17 [getports {A}]  
set property IOSTANDARD LVCMOS33 [getports {A}]
```



- the port name on FPGA
- input or output port names
- one-bit on each port

Introduction (3/3)

```
module top_module (SW, LED);  
input [2-1:0]SW;  
output LED;  
.....  
endmodule
```

```
set property PACKAGE_PIN V17 [getports {SW[1]}]  
set property IOSTANDARD LVCMOS33 [getports {SW[1]}]  
set property PACKAGE_PIN V16 [getports {SW[0]}]  
set property IOSTANDARD LVCMOS33 [getports {SW[0]}]  
set property PACKAGE_PIN U16 [getports {LED}]  
set property IOSTANDARD LVCMOS33 [getports {LED}]
```

Agenda

Introduction

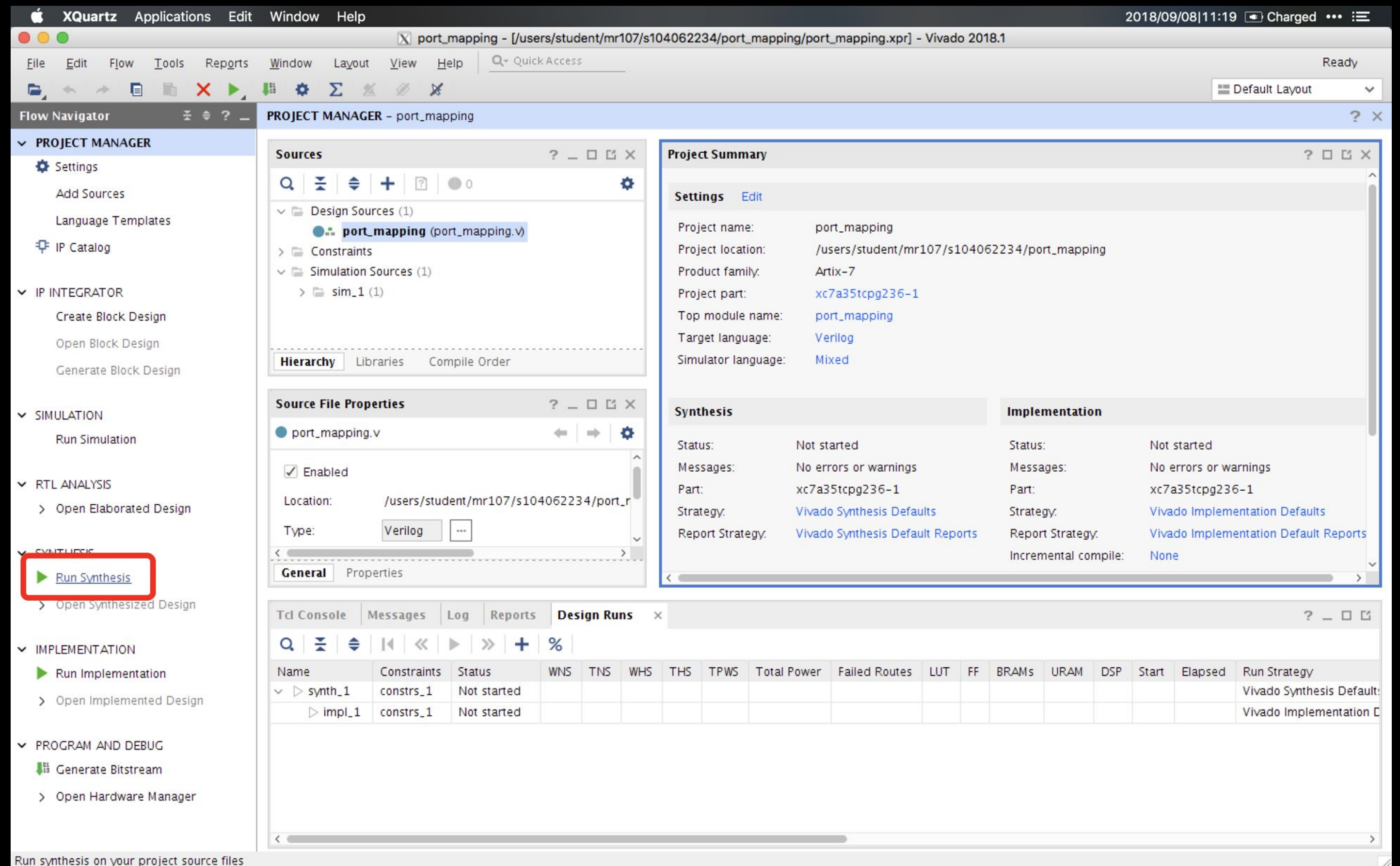
Create a new XDC file

Add a existing XDC file

Edit the XDC file

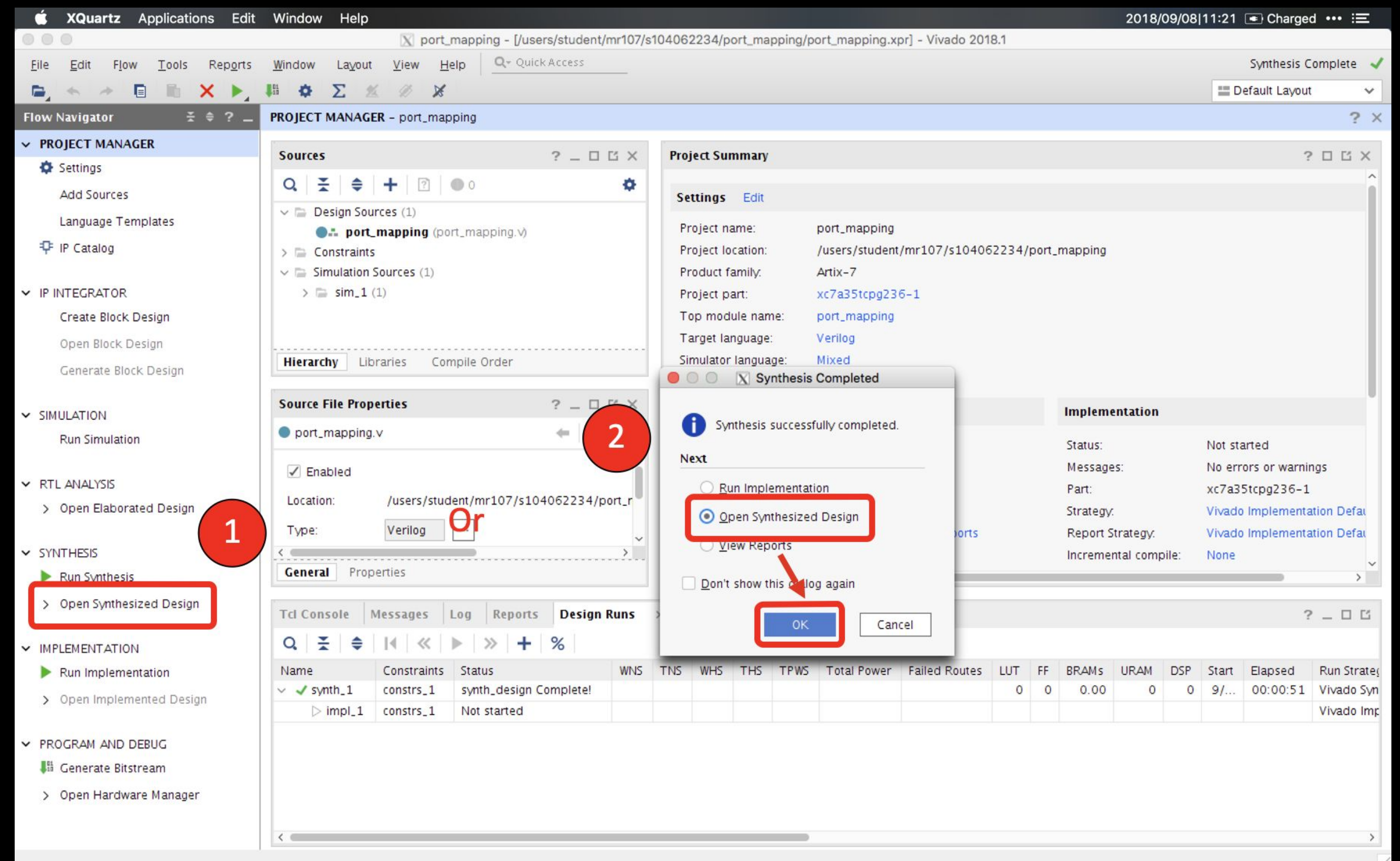
Create a new XDC file (1/9)

- First, Run synthesis on your design



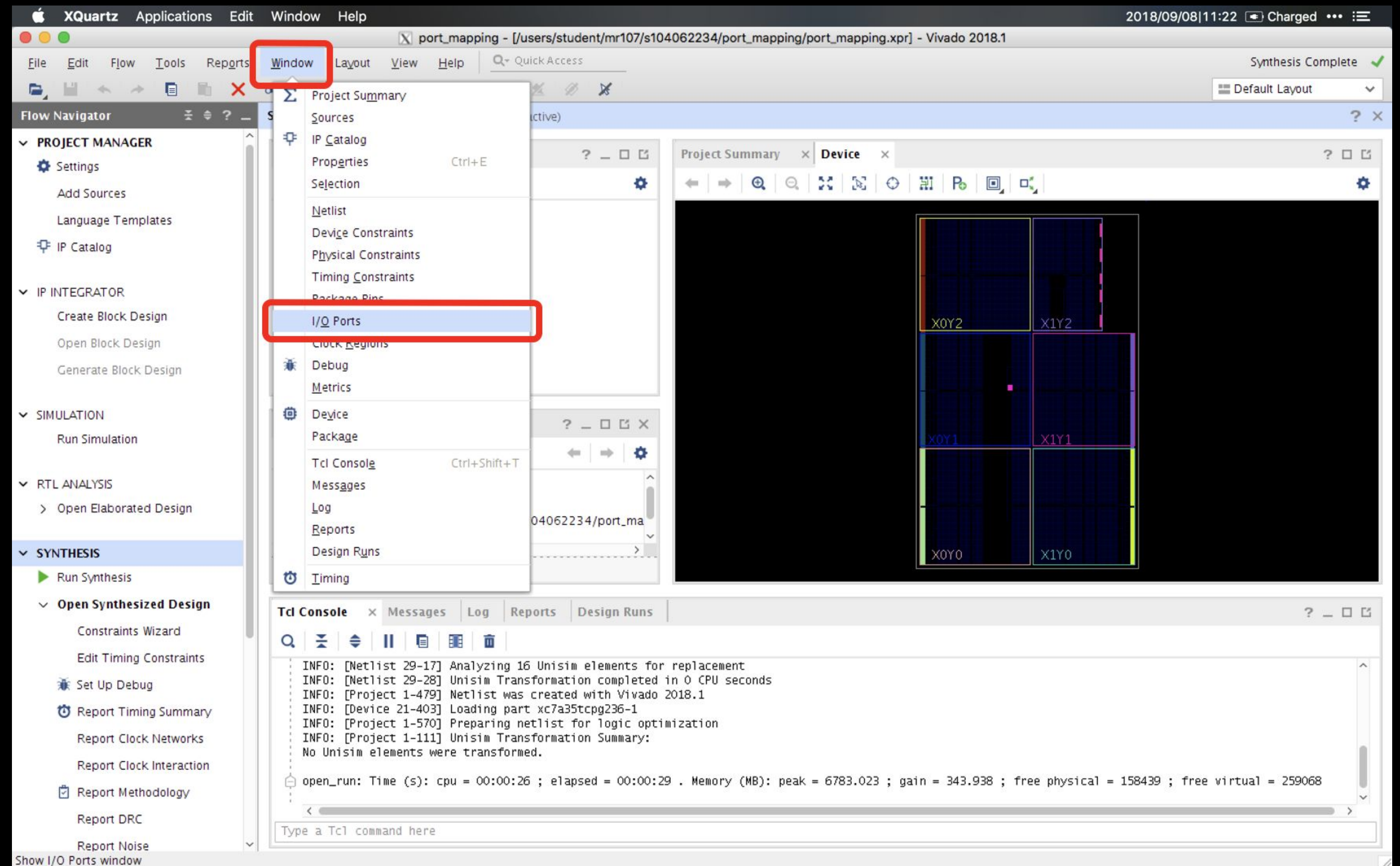
Create a new XDC file (2/9)

- Then, open the synthesized design



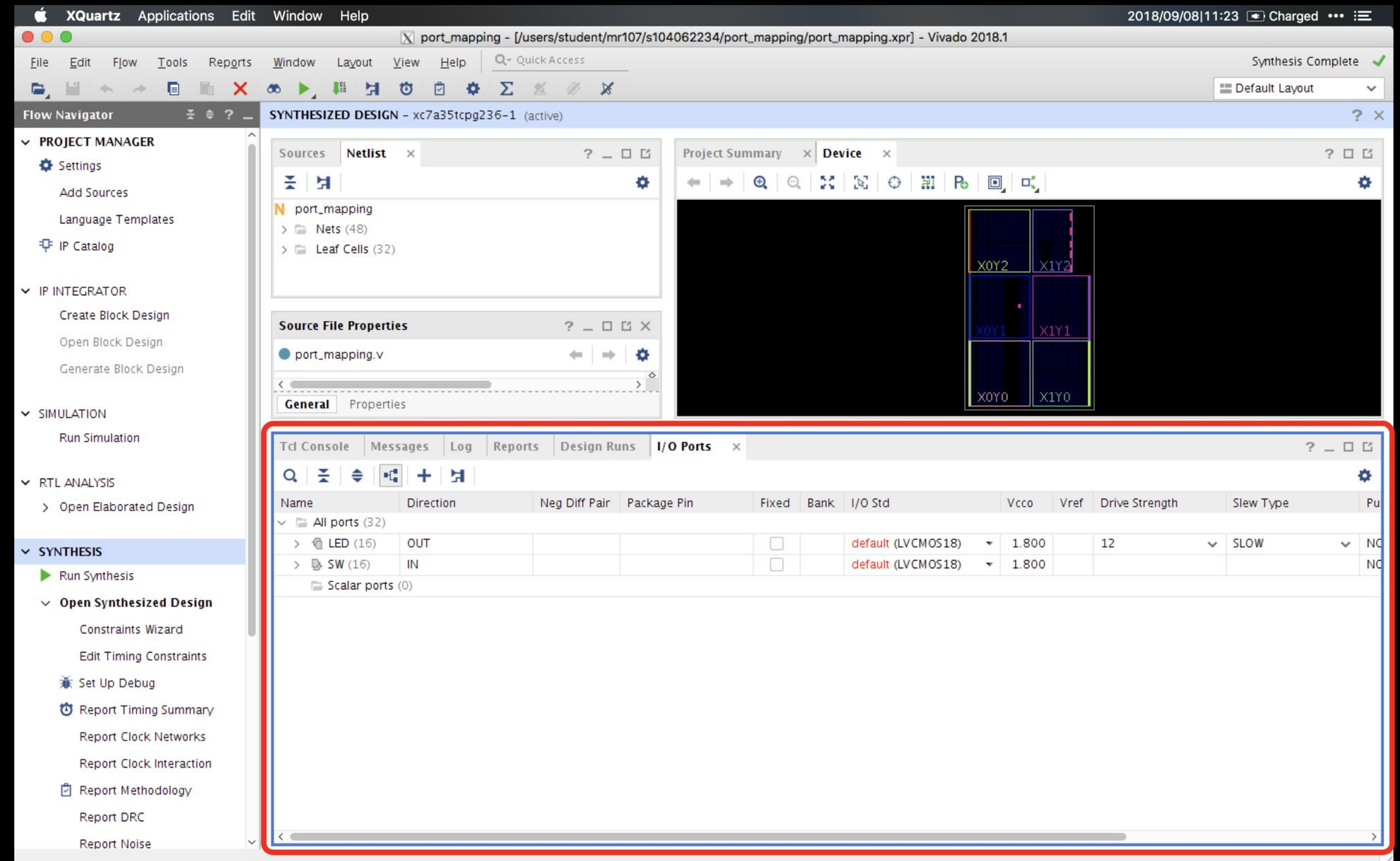
Create a new XDC file (3/9)

- Open the I/O port panel



Create a new XDC file (4/9)

- Open the I/O port panel



Create a new XDC file (5/9)

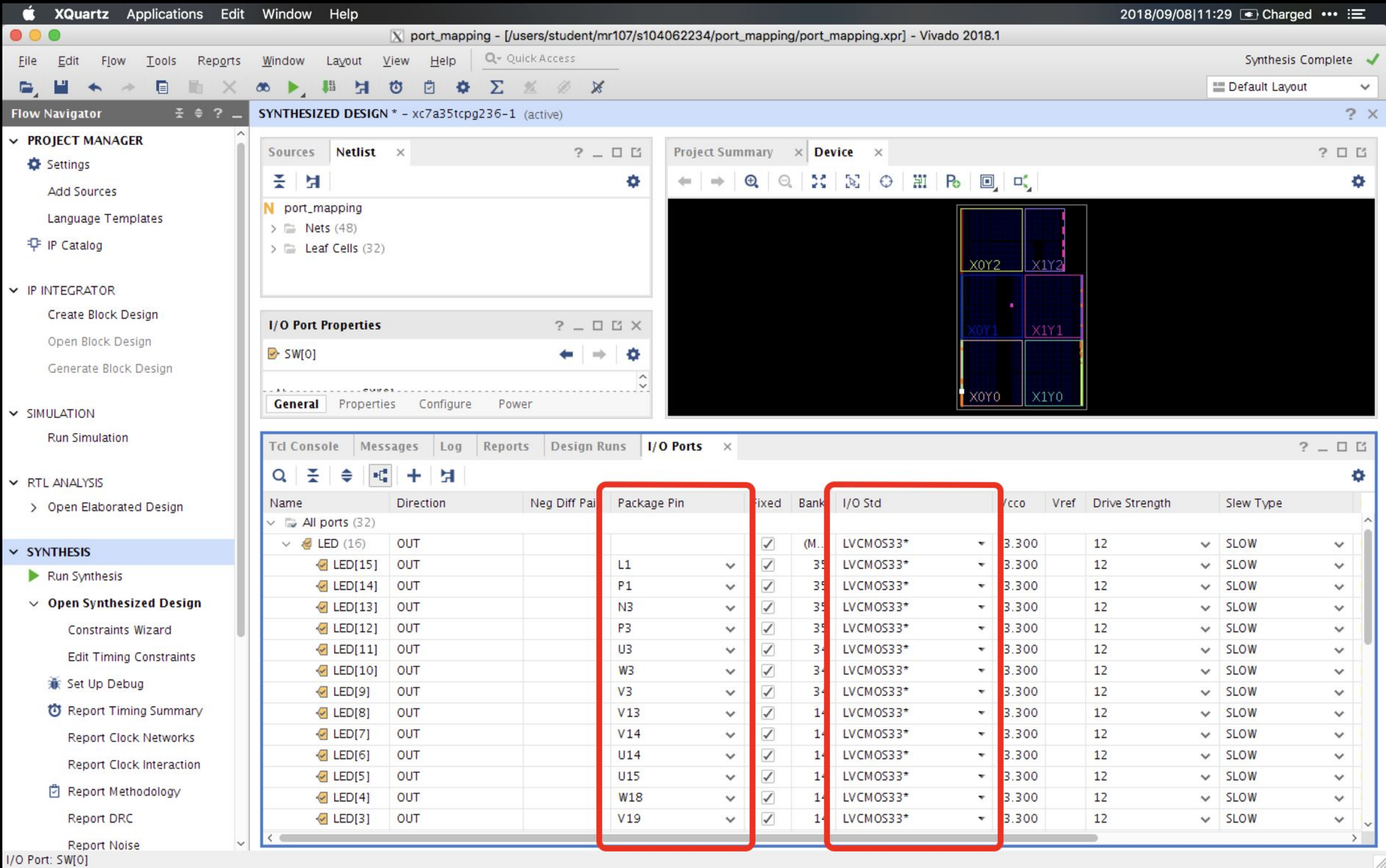
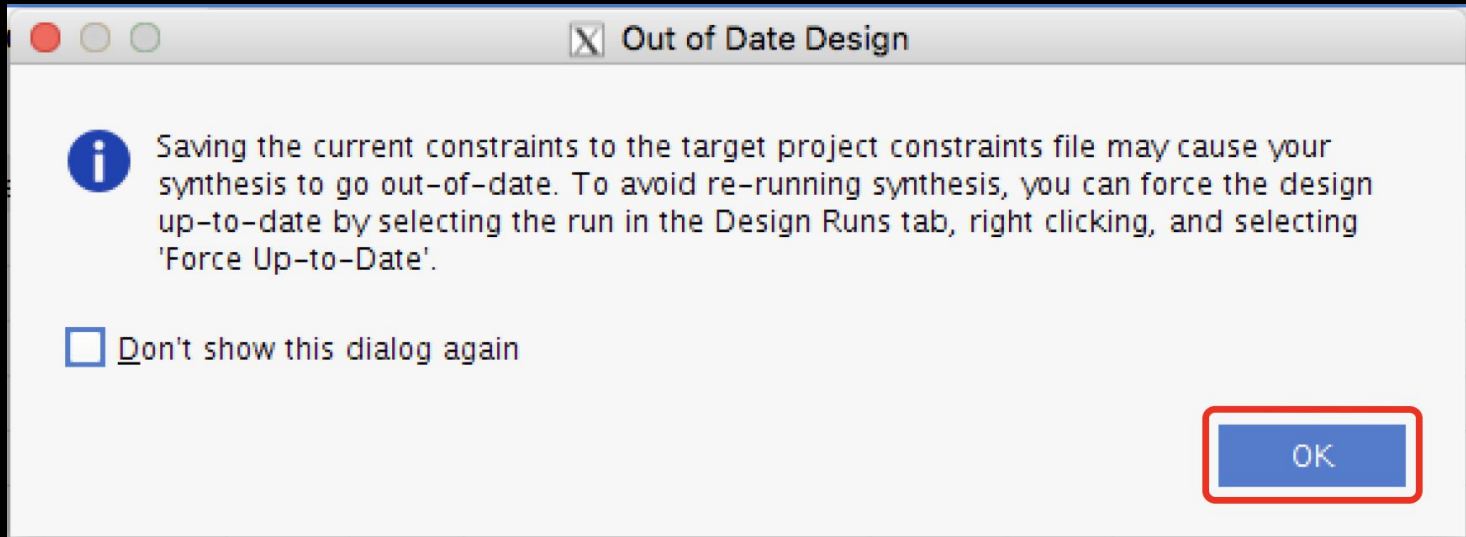
- Fill in the fields
according to your need
- For I/O std, select
LVC MOS33

The screenshot shows the Vivado 2018.1 interface with the 'I/O Ports' configuration window open. The 'I/O Std' column is highlighted with a red box, and the 'LVC MOS33' value is selected for all ports. The 'Package Pin' column is also highlighted with a red box.

Name	Direction	Neg Diff Pair	Package Pin	Fixed	Bank	I/O Std	Vcco	Vref	Drive Strength	Slew Type
LED (16)	OUT									
LED[15]	OUT		L1	<input checked="" type="checkbox"/>	35	LVC MOS33*	3.300		12	SLOW
LED[14]	OUT		P1	<input checked="" type="checkbox"/>	35	LVC MOS33*	3.300		12	SLOW
LED[13]	OUT		N3	<input checked="" type="checkbox"/>	35	LVC MOS33*	3.300		12	SLOW
LED[12]	OUT		P3	<input checked="" type="checkbox"/>	35	LVC MOS33*	3.300		12	SLOW
LED[11]	OUT		U3	<input checked="" type="checkbox"/>	34	LVC MOS33*	3.300		12	SLOW
LED[10]	OUT		W3	<input checked="" type="checkbox"/>	34	LVC MOS33*	3.300		12	SLOW
LED[9]	OUT		V3	<input checked="" type="checkbox"/>	34	LVC MOS33*	3.300		12	SLOW
LED[8]	OUT		V13	<input checked="" type="checkbox"/>	14	LVC MOS33*	3.300		12	SLOW
LED[7]	OUT		V14	<input checked="" type="checkbox"/>	14	LVC MOS33*	3.300		12	SLOW
LED[6]	OUT		U14	<input checked="" type="checkbox"/>	14	LVC MOS33*	3.300		12	SLOW
LED[5]	OUT		U15	<input checked="" type="checkbox"/>	14	LVC MOS33*	3.300		12	SLOW
LED[4]	OUT		W18	<input checked="" type="checkbox"/>	14	LVC MOS33*	3.300		12	SLOW
LED[3]	OUT		V19	<input checked="" type="checkbox"/>	14	LVC MOS33*	3.300		12	SLOW

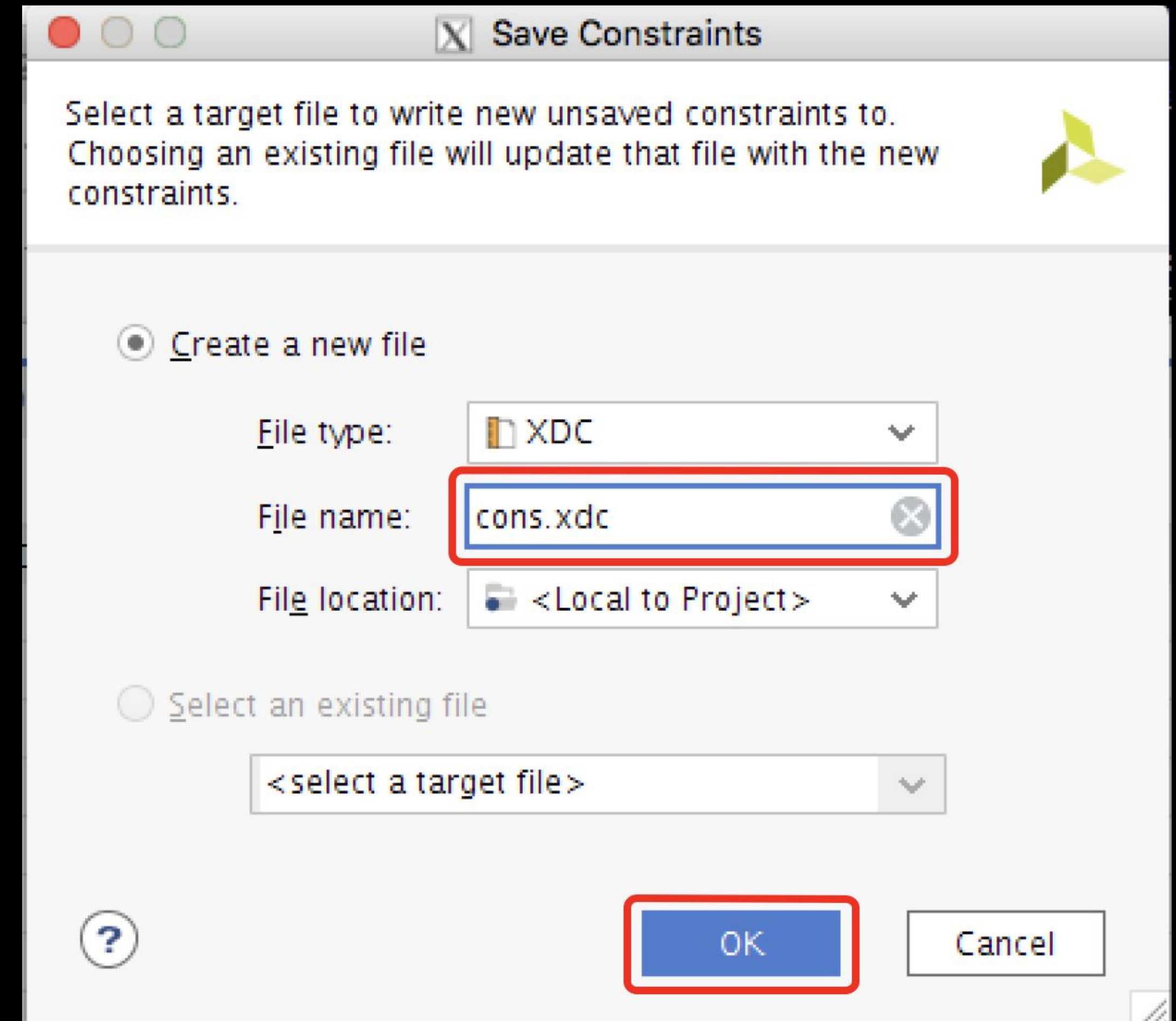
Create a new XDC file (6/9)

- Save XDC configuration by cntrl + s



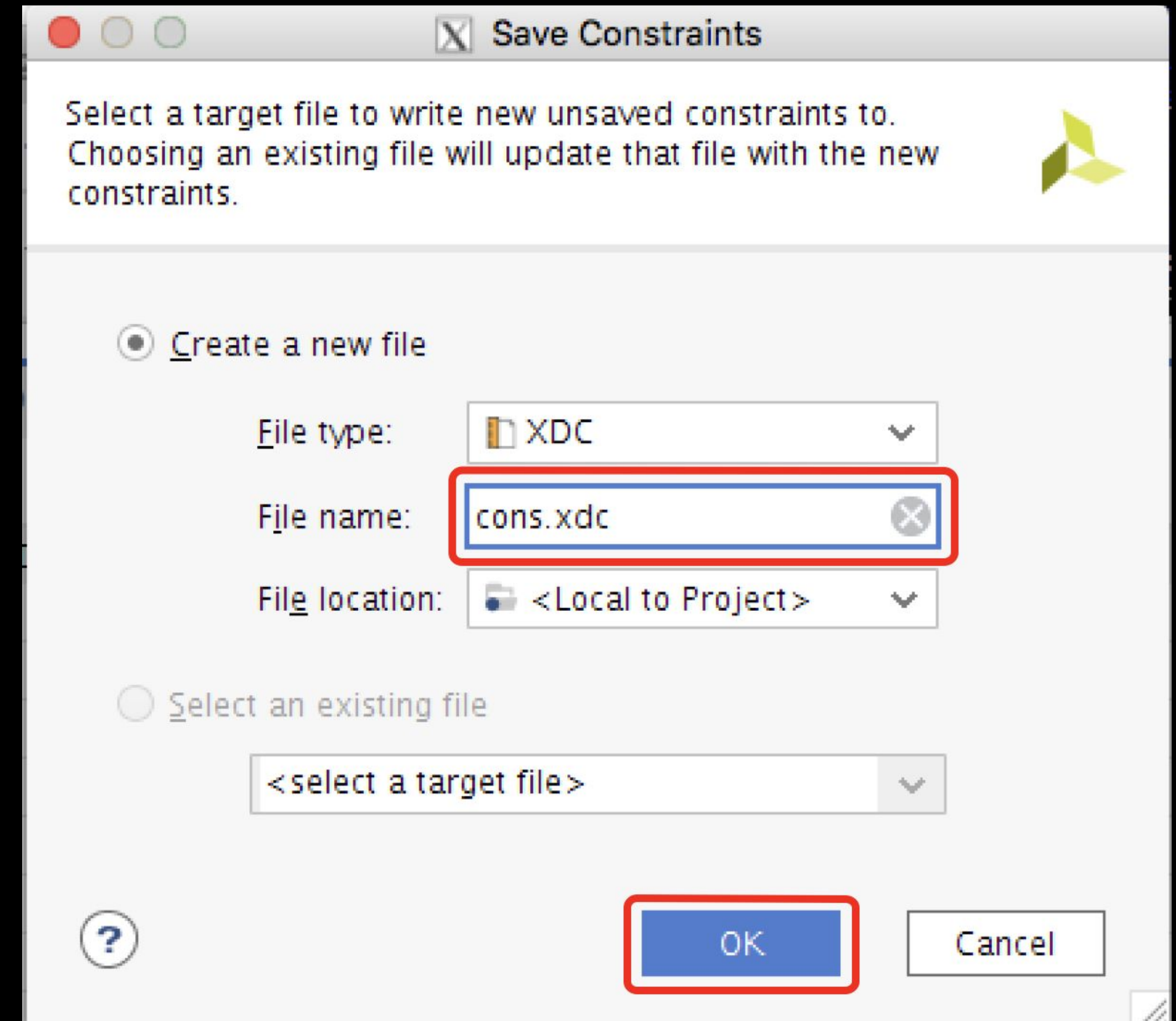
Create a new XDC file (7/9)

- Set the filename and file path of your constraint file.



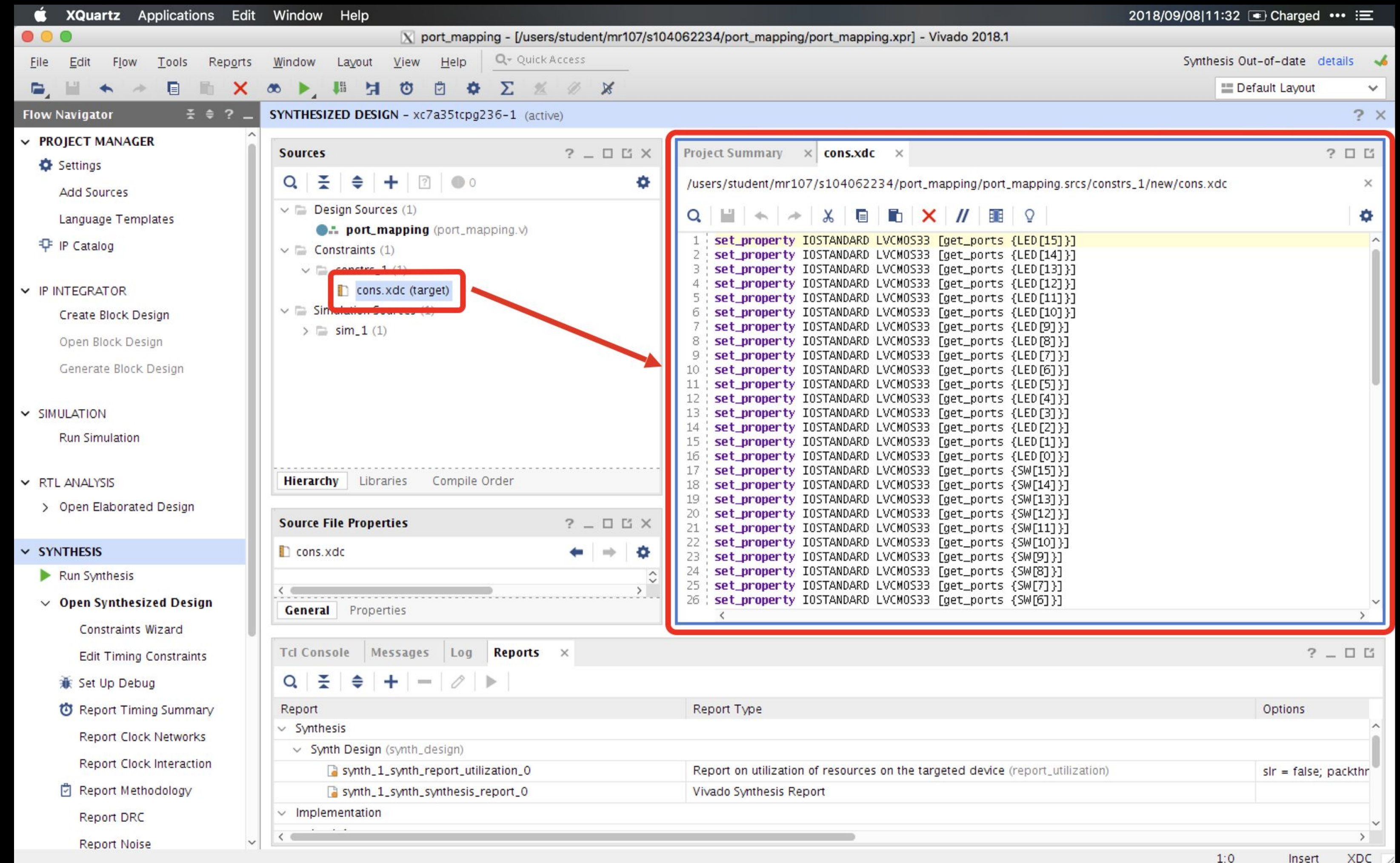
Create a new XDC file (8/9)

- Set the filename and file path of your constraint file.



Create a new XDC file (9/9)

• Done



Agenda

Introduction

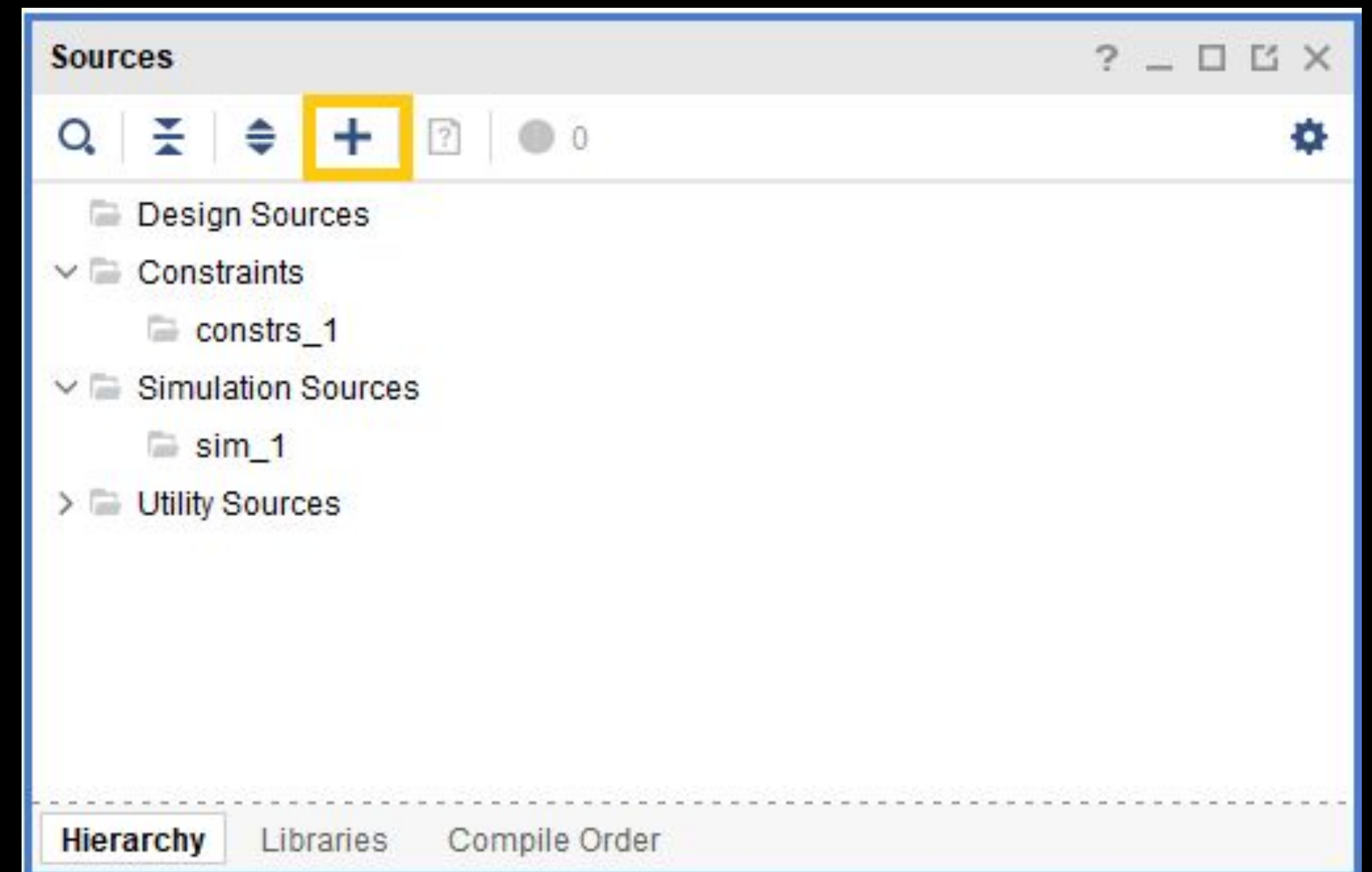
Create a new XDC file

Add a existing XDC file

Edit the XDC file

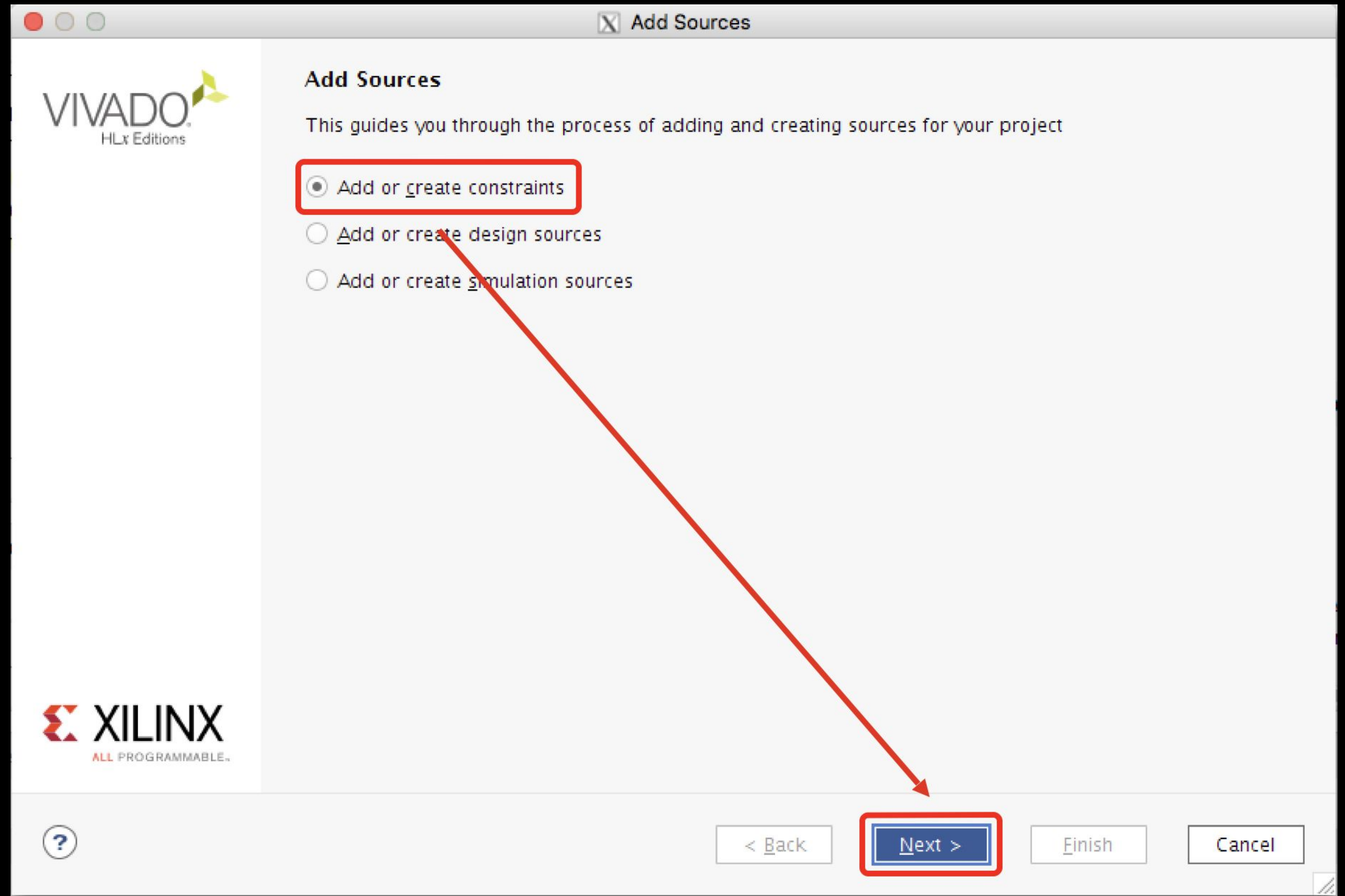
Add a existing XDC file (1/5)

- Just like adding a design source, click on the + in the source panel



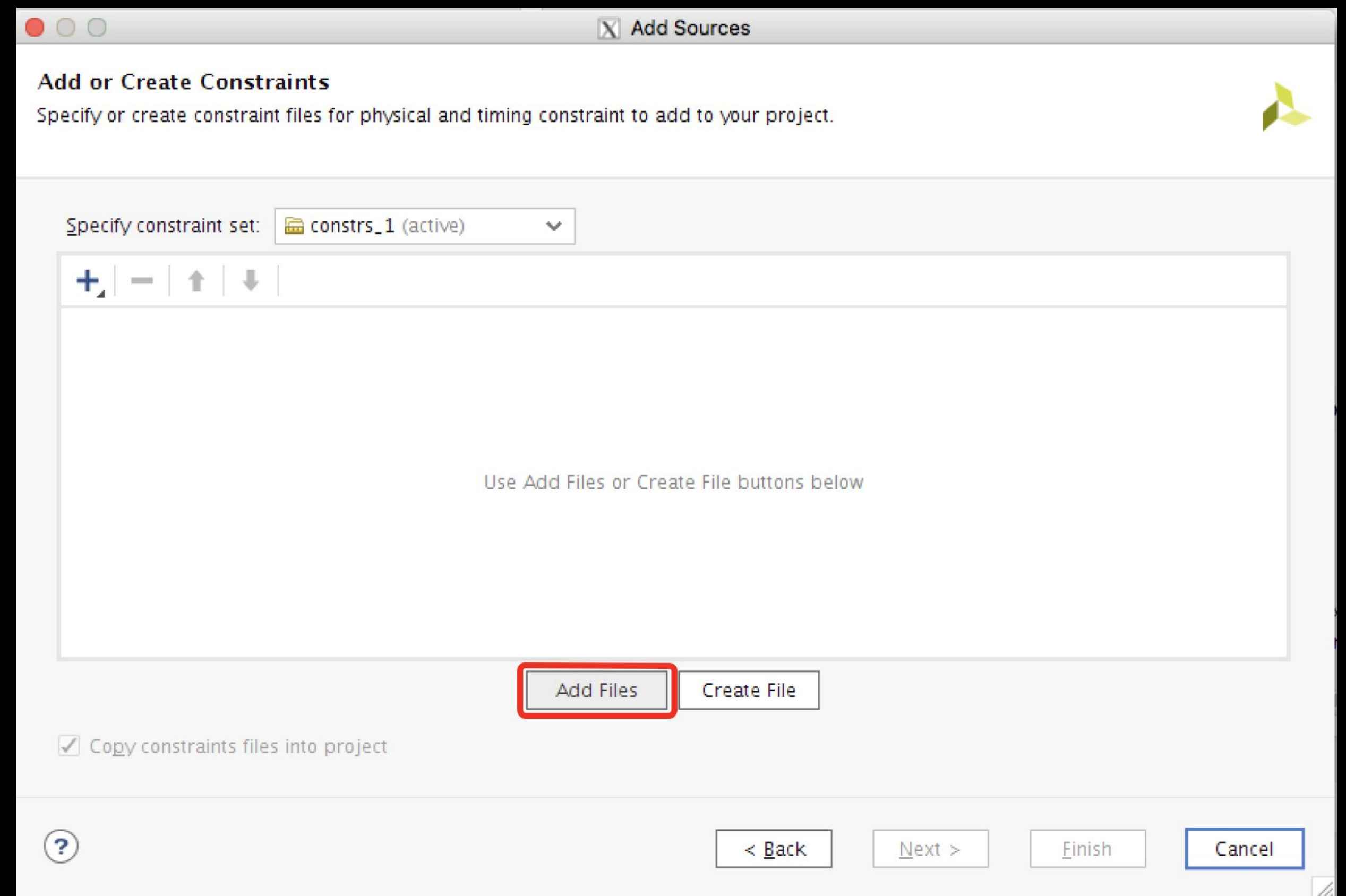
Add a existing XDC file (2/5)

- Select *Add or create constraints*.



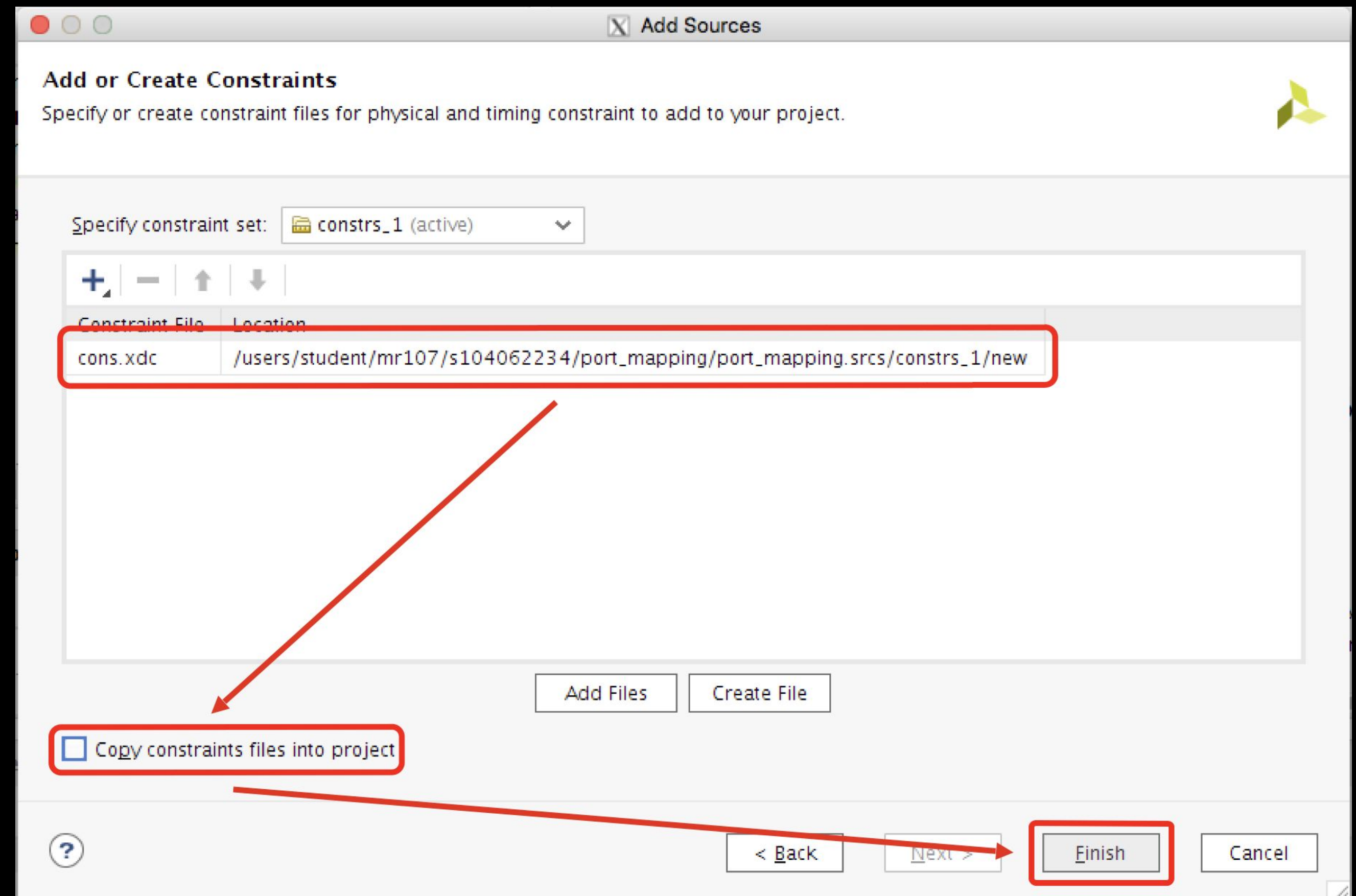
Add a existing XDC file (3/5)

- Select **Add Files** and select the .xdc file you want to add.



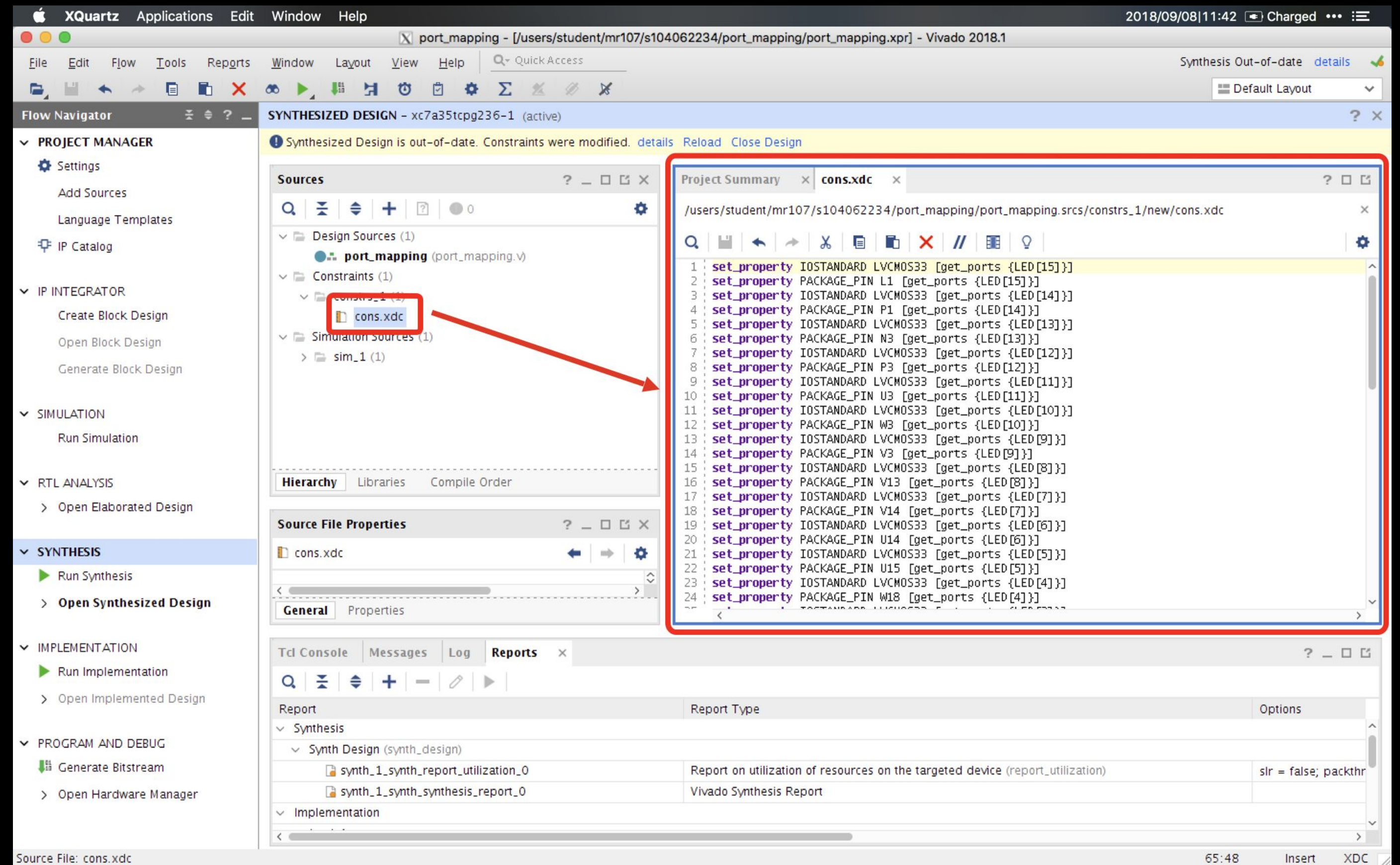
Add a existing XDC file (4/5)

- Make sure the file you include is correct
- Select ***Copy constraints*** files into project.
- Hit ***Finish***.



Add a existing XDC file (5/5)

• Done



Agenda

Introduction

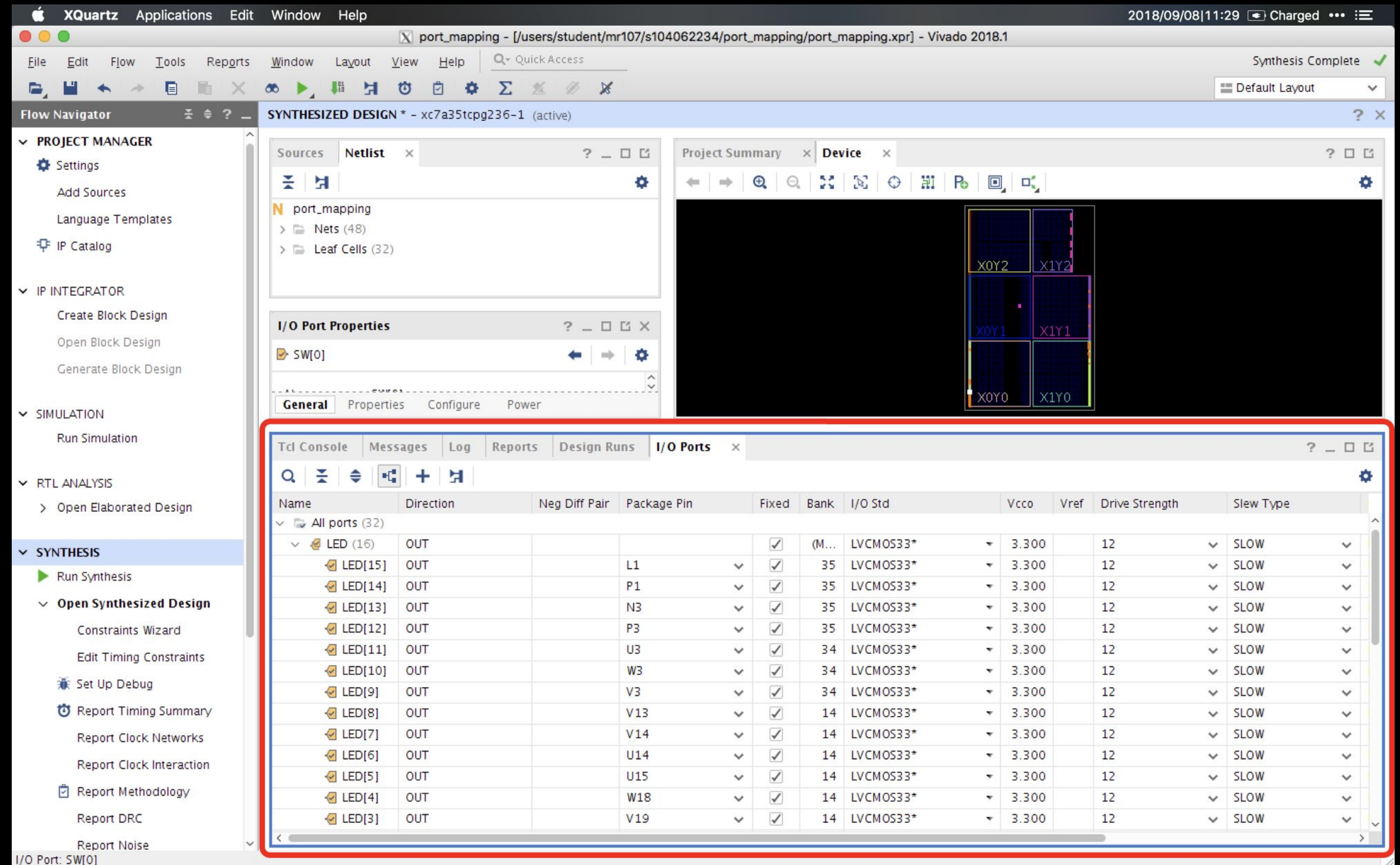
Create a new XDC file

Add a existing XDC file

Edit the XDC file

Edit the XDC file (1/1)

- Open synthesized design.
- Open I/O panel.
- Edit.
- Save.
- Done.



Q&A