

# Installing and Checking the Installation of the CLEARSY Safety Platform

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# Installation

- ▶ Install **ATELIER B 24.04 CSP EDUCATIONAL VERSION** Windows (unfortunately other OS cannot be used for the session)
  - Download page: <https://www.atelierb.eu/en/atelier-b-support-maintenance/download-atelier-b/>
  - Direct link: <https://www.atelierb.eu/wp-content/uploads/2024/09/atelierb-cssp-24.04.exe>
- ▶ Execute the Atelier B installer
- ▶ Install **Python** (3.6+) if not yet installed on your computer:
  - Download page: <https://apps.microsoft.com/detail/9pnrbtzm4z?hl=en-us&gl=US>
  - Download page: <https://www.python.org/downloads/windows/> (and rename python.exe as python3.exe)
- ▶ Install **Cmake**
  - Download page: <https://cmake.org/download/>
  - Add the cmake/bin directory to the PATH
- ▶ Install **MinGW**
  - Download page: <https://winlibs.com>
  - Select the latest UCRT version with the POSIX
  - Add the mingw64/bin directory to the PATH

# Troubleshooting (Python installation)

- ▶ Python is often installed several times on your computer.
- ▶ Atelier B CSSP 24.04 requires **python3.exe** and **pip3.exe** to be in the PATH
- ▶ Type in a DOS terminal: *where python3*
  - You should get C:\Users\<user>\AppData\Local\Microsoft\WindowsApps\python3.exe
- ▶ Type in a DOS terminal: *where pip3*
  - You should get C:\Users\<user>\AppData\Local\Microsoft\WindowsApps\pip3.exe
- ▶ You should get the same path
- ▶ If not, either change your PATH to point to the correct directory, or copy and rename resp. python.exe in python3.exe and pip.exe in pip3.exe

# Project Creation

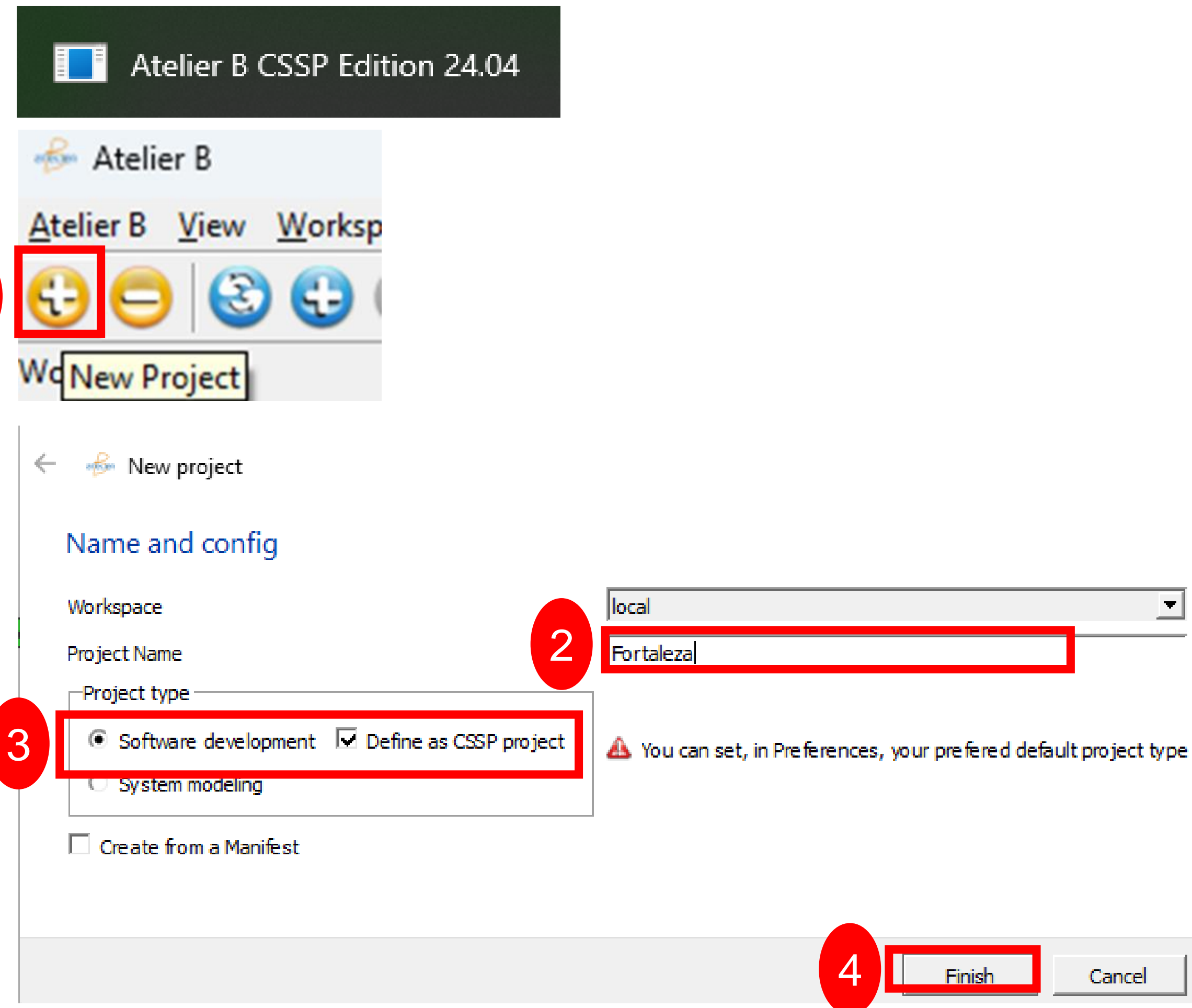
We are going to create an empty project that we will modify to complete exercises

# Project Creation 1/3

► Start Atelier B

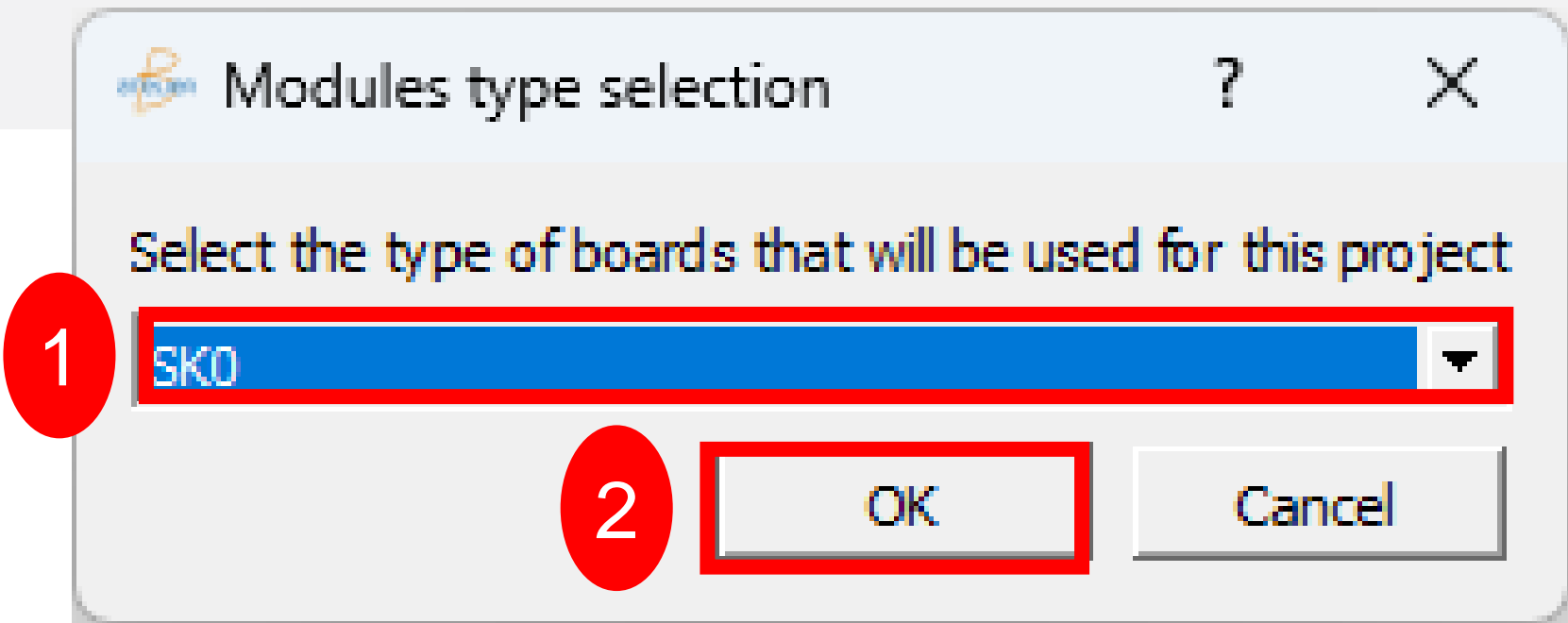
► Create a new project

► Give a name and a type

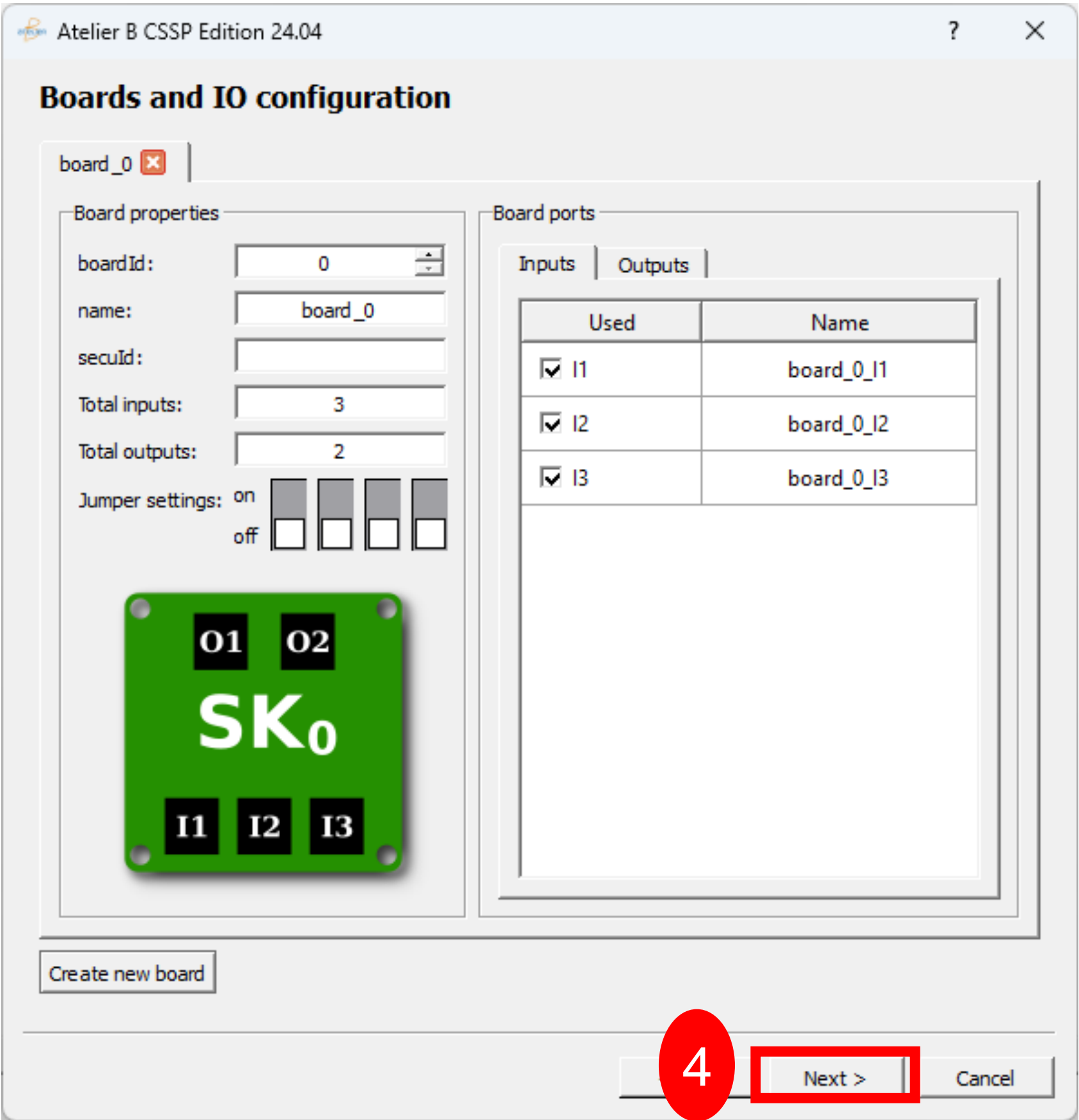
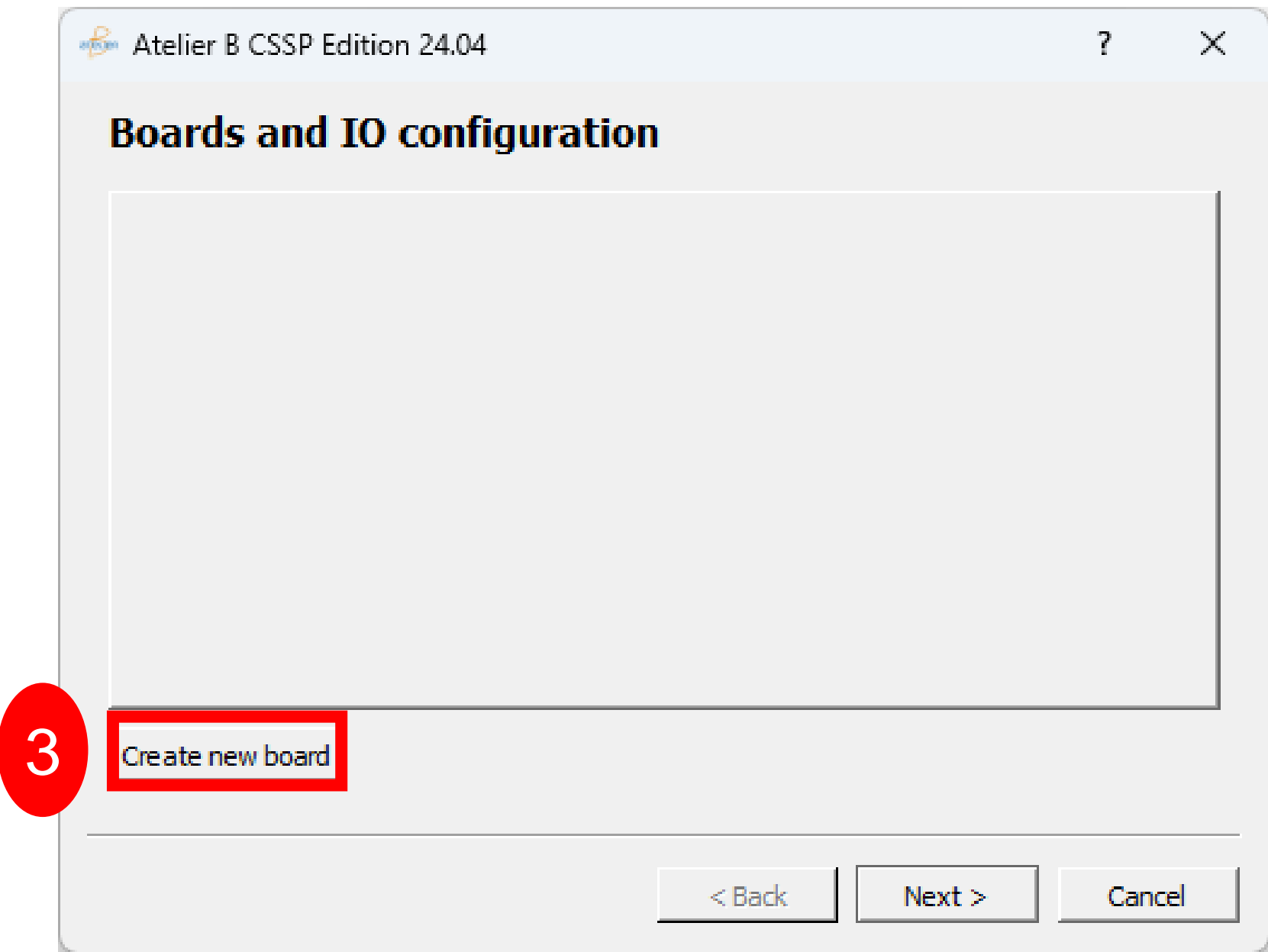


# Project Creation 2/3

► Select SK0



► Create a new board



# Project Creation 3/3

► Finish the creation

Atelier B CSSP Edition 24.04

**Boards summary**

BoardId: 0  
Total inputs: 3  
Total outputs: 2  
SecuId: 0xF0F00  
Board type: SK0

Inputs:

module_id	global_id	local_id	name	used
0	0	0	board_0_I1	true
0	1	1	board_0_I2	true
0	2	2	board_0_I3	true

Outputs:

module_id	global_id	local_id	name	used
0	0	0	board_0_O1	true
0	1	1	board_0_O2	true

Please check the configuration and click finish if you want to apply the changes to your project. Otherwise click cancel to abandon the wizard.

< Back

**1** Finish

Cancel

Warning

?

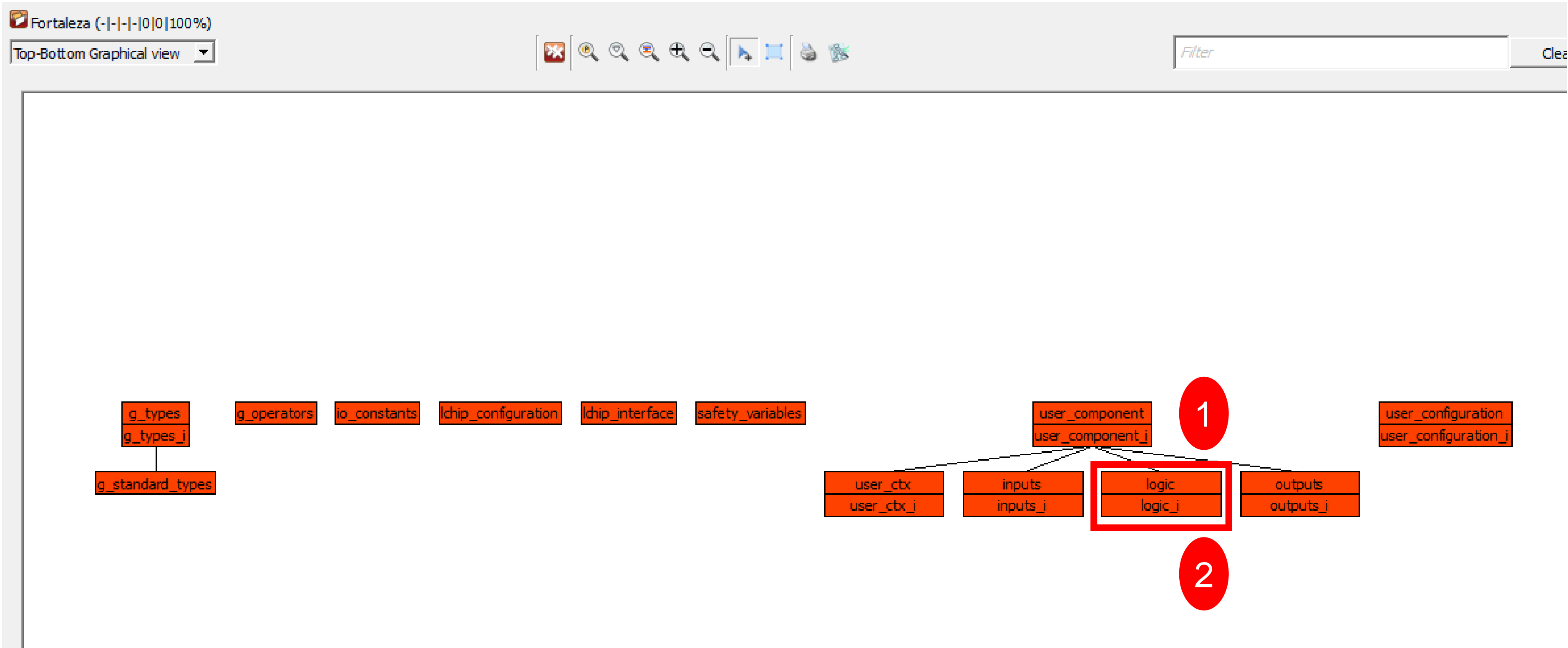
The new config will replace the one of your current project. Are you sure you want to proceed?

**2** Yes

No

# Project Created

- ▶ The view
- ▶ 2 components to modify



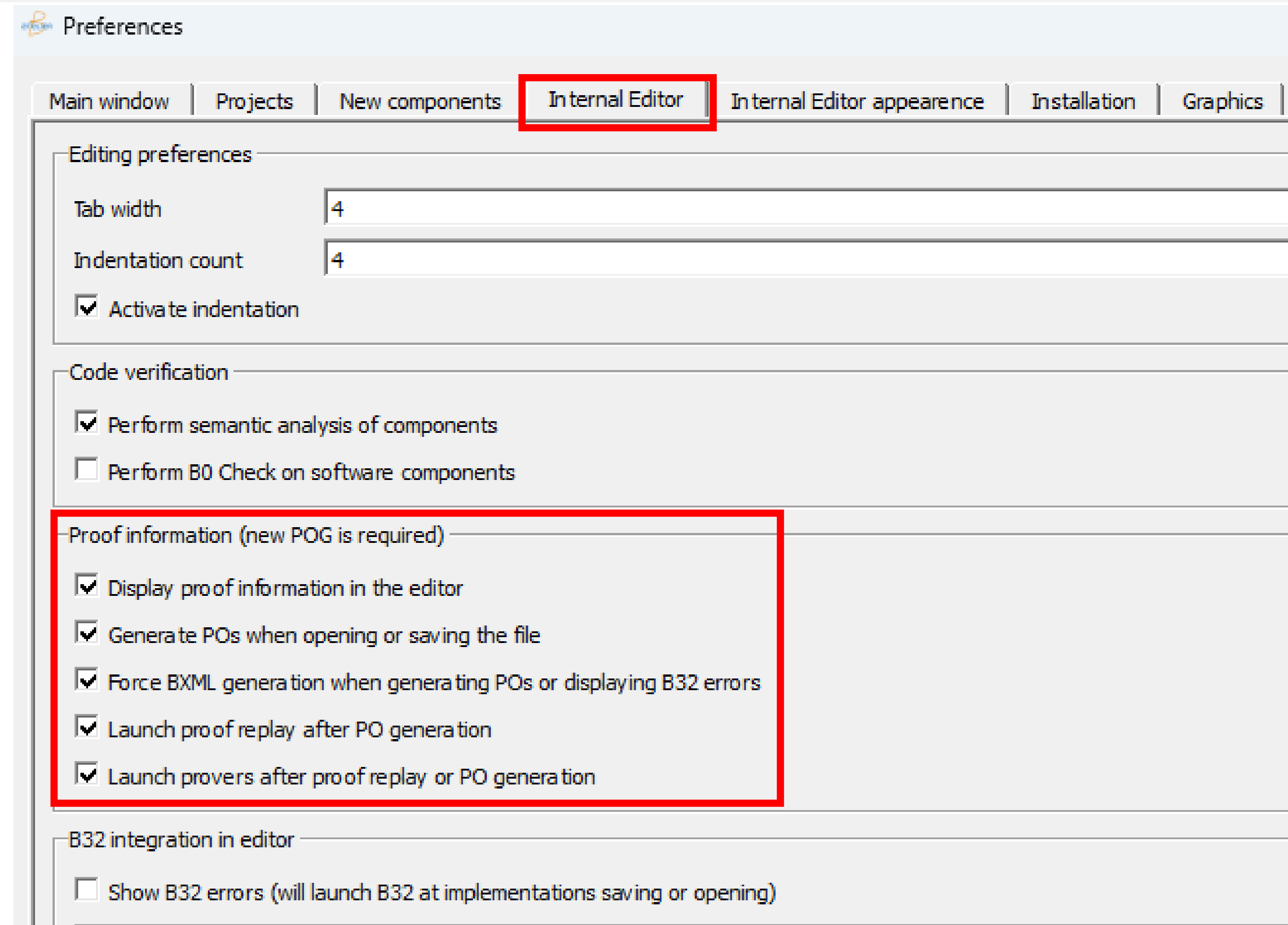


# Atelier B and Project Setup

Let us verify  
that we are going to see  
the same User Interface

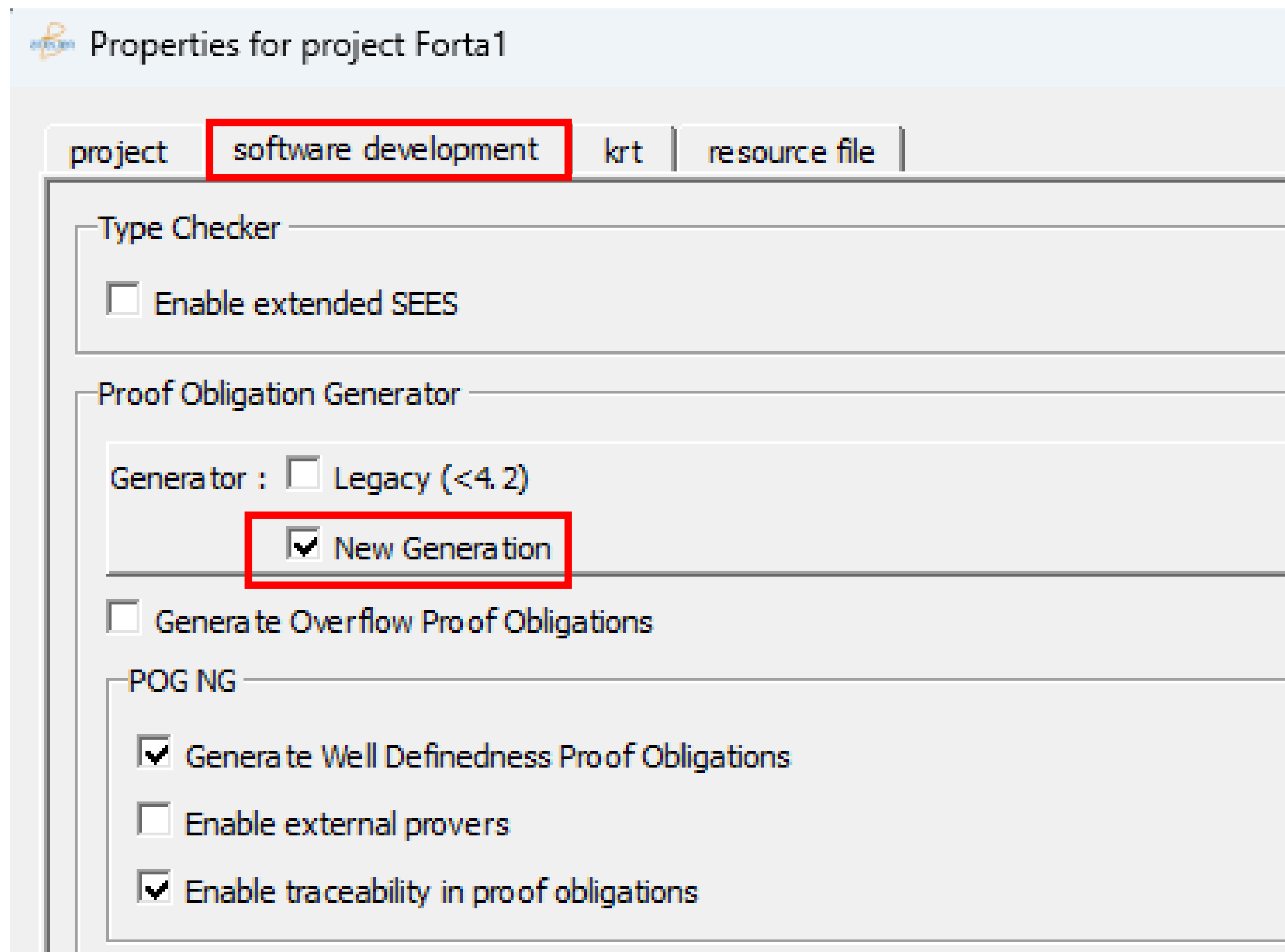
# Checking Setup 1/2

- ▶ Open menu Atelier B / Preferences
- ▶ Select Internal Editor
- ▶ Ensure that Proof Information is fully checked



# Checking Setup 2/2

- ▶ Open your project
- ▶ Open menu Project / Properties
- ▶ Select Software Development
- ▶ Ensure that New Generation is checked in Proof Obligation Generator



# Atelier B CSSP Configuration

Let us verify  
that we all can activate the simulator

# To be sure Your Environment is Operational ...1/5

- ▶ Select all the components with Ctrl+A
- ▶ Start Proof Force 0 (or Ctrl-0)
- ▶ Wait for proof to complete

The screenshot shows the Atelier B IDE interface. The top toolbar contains various icons, with the 'Fo' (Proof Force) icon highlighted by a red circle with the number 1. The main workspace displays a hierarchical diagram of the Fortaleza project components. The bottom panel, labeled 'Tasks', is highlighted by a red circle with the number 2 and contains a table of tasks.

Project	Component	Action	Status	Messages	Server
Fortaleza	g_operators		Running	Pog generation...	localhost
Fortaleza	g_standard_types		Waiting		
Fortaleza	g_types		Waiting		
Fortaleza	g_types_i		Waiting		
Fortaleza	inputs		Waiting		
Fortaleza	inputs_i		Waiting		
Fortaleza	io_constants		Waiting		
Fortaleza	lchip_configura...		Waiting		

# To be sure Your Environment is Operational ... 2/5

- ▶ All components green
- ▶ All tasks completed (select “Hide finished tasks”)

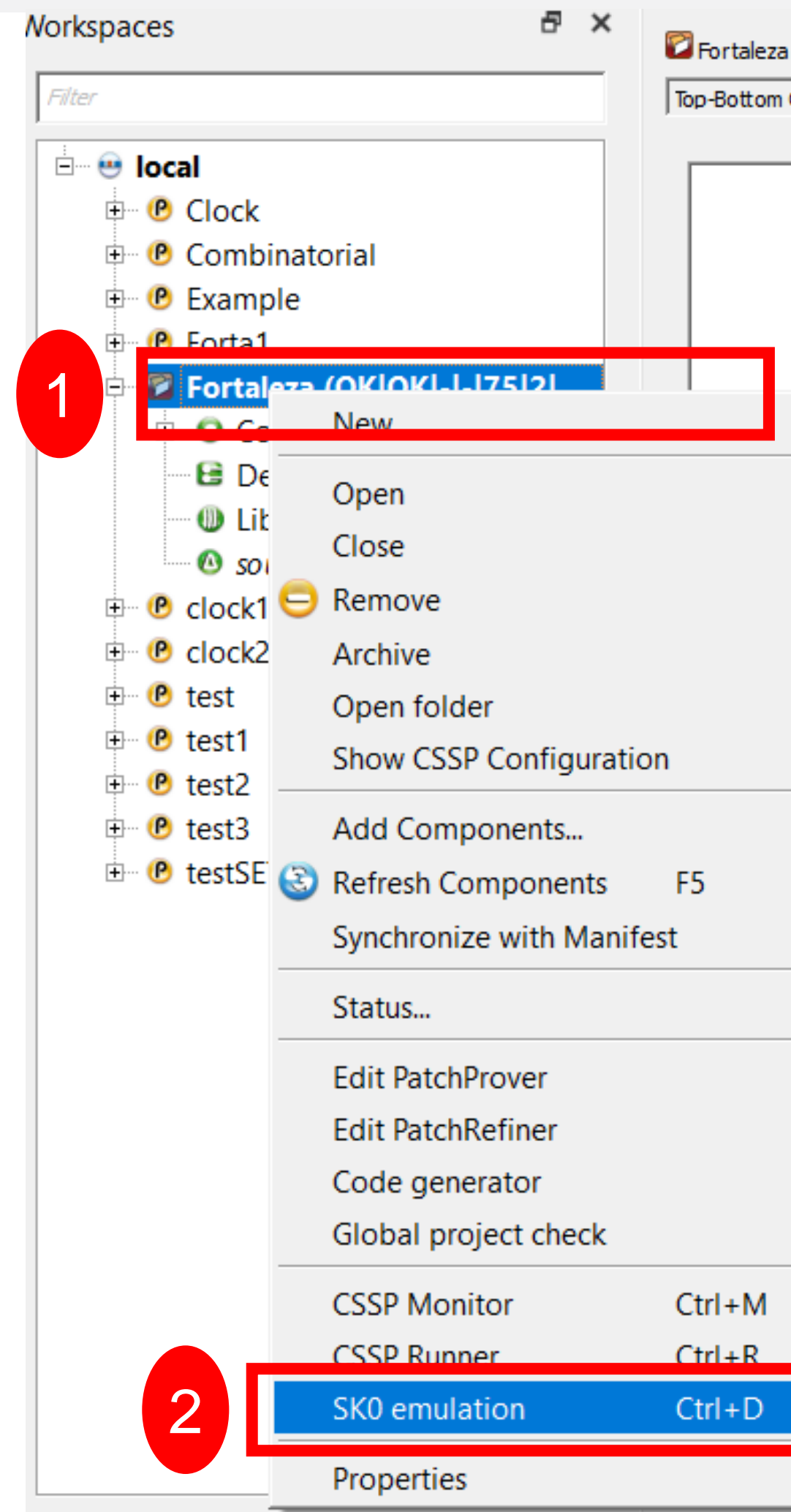
The screenshot shows the Atelier B IDE interface. The top menu bar includes 'Atelier B', 'View', 'Workspace', 'Project', 'Component', and 'Help'. Below the menu is a toolbar with various icons. The main workspace is divided into three panes:

- Workspaces:** A tree view on the left showing the project structure. It includes a 'local' folder with sub-items like 'Clock', 'Combinatorial', 'Example', 'Forta1', 'Fortaleza', 'Components', 'Definitions', 'Libraries', and 'source WD lemmas'. The 'Fortaleza' folder is expanded, showing 'Components', 'Definitions', and 'Libraries'. A red circle with the number '1' is placed next to the 'Fortaleza' folder.
- Top-Bottom Graphical view:** A large central area displaying a hierarchical diagram of the project. The diagram shows a root node 'user\_component' with several sub-nodes: 'g\_types', 'g\_operators', 'io\_constants', 'chip\_configuration', 'chip\_interface', 'safety\_variables', 'user\_configuration', 'user\_component', 'user\_ctx', 'inputs', 'logic', and 'outputs'. A red rectangle highlights the entire graphical view area.
- Tasks:** A table at the bottom showing the status of tasks. The table has columns: 'Project', 'Component', 'Action', 'Status', 'Messages', and 'Server'. A red circle with the number '2' is placed next to the 'Tasks' table. A red rectangle highlights the 'Tasks' table area. In the top right corner of the 'Tasks' pane, there is a checkbox labeled 'Hide Finished tasks' which is checked.

# To be sure Your Environment is Operational ... 3/5

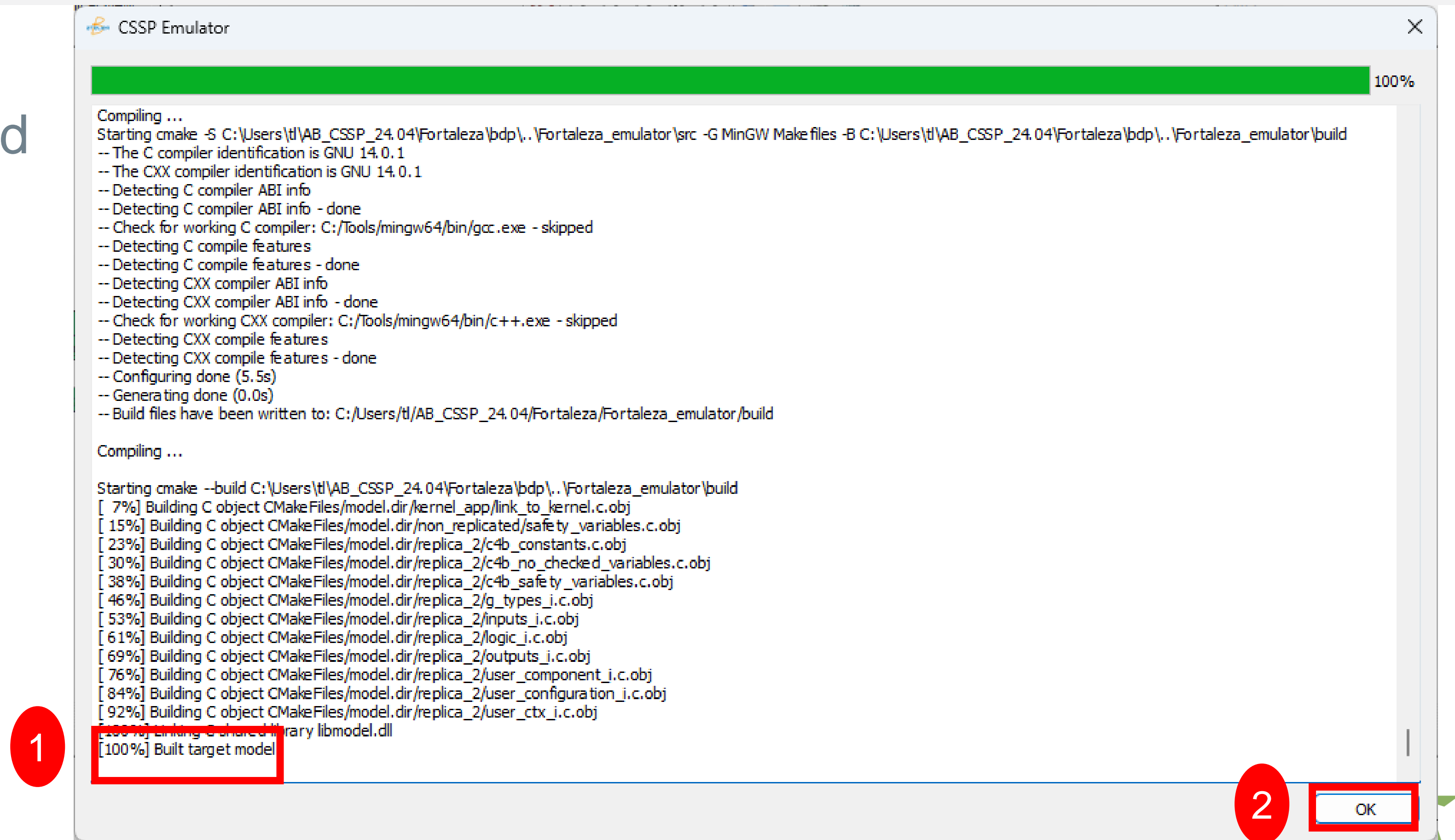
► Right click on the project

► Select “SK0 emulation” or Ctrl-D



# To be sure Your Environment is Operational ... 4/5

- ▶ After several seconds and verbose messages ...
- ▶ The process terminates with [100%] Built target model
- ▶ Click on OK



If stops before 100%, cmake / gcc installation is probably incomplete

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# To be sure Your Environment is Operational ... 5/5

- ▶ The simulator starts
- ▶ If you click on I1, I2 or I3, the v\_board\_0\_Ix variables change
- ▶ The time flies

The screenshot displays the CSSP Emulator interface. On the left, a green circuit board is shown with various components labeled: POWER, O1, O2, SERIAL, USB, RESET, UC1, UC2, and a 'clearsy Safety platform' logo. At the bottom of the board, three input modules labeled I1, I2, and I3 are highlighted with a red box and a red circle containing the number 1. On the right, a 'Variables' table is visible, with two rows highlighted by red boxes and red circles containing the numbers 2 and 3.

Variables	Values
v_board_0_I1	0
v_board_0_I2	0
v_board_0_I3	0
v_board_0_O1	0
v_board_0_O2	0
v_divergence_test_var	0
v_ms_tick	5671



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