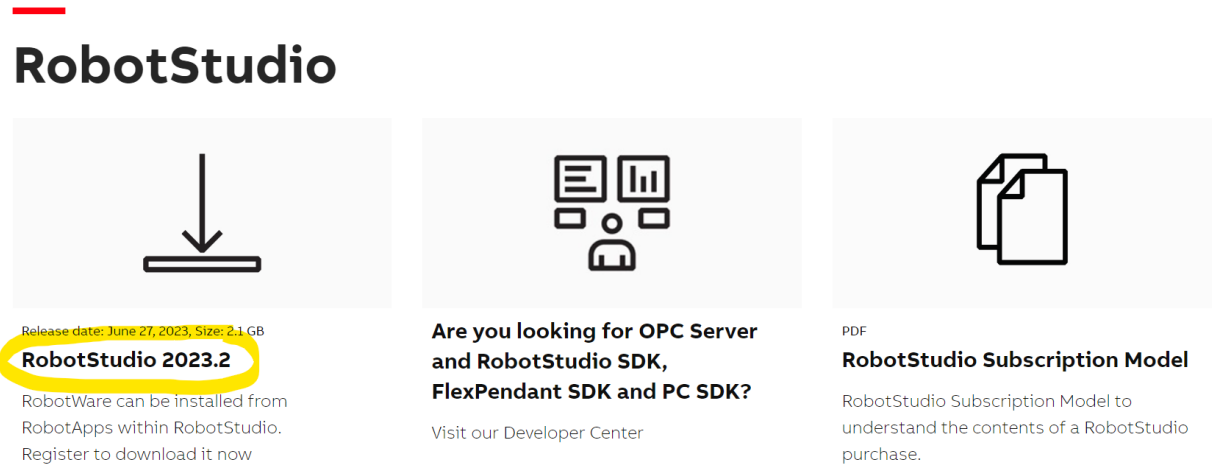
RobotStudio

The first step in learning how to use our collaborative robot is installing and playing with RobotStudio. Implemented by ABB, RobotStudio is an offline programming and simulation tool for industrial robots. Within this platform, you can simulate a complete robotics environment, from programming to manipulation, being able to deploy your work to an actual robot as necessary.

How to install it?

Access this website and click on the download button:
https://new.abb.com/products/robotics/robotstudio/downloads



You will be required to fill out a form with your basic information. The download link will be sent to the email you used in the form. Use the standard installation process. Once you have RobotStudio installed, open it on your machine.

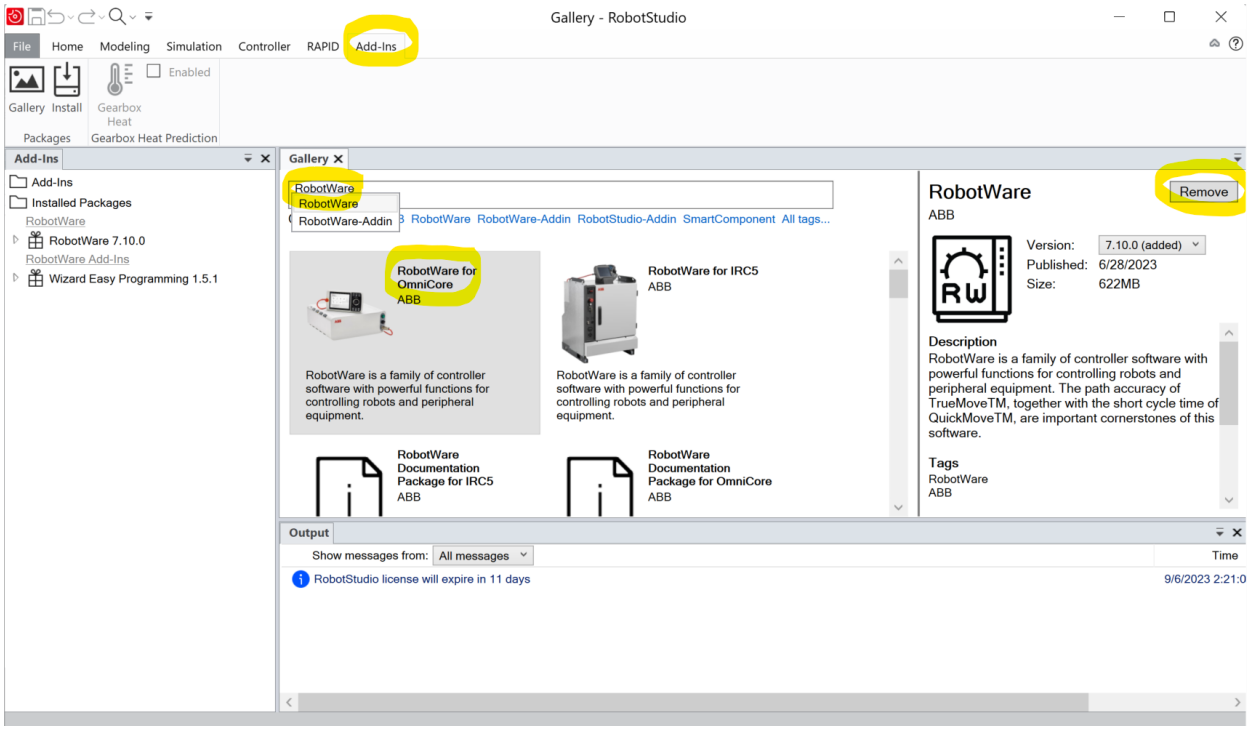
Note: RobotStudio is made to run on Windows. If you are using another operating system, please use a virtual machine.

Creating a new controller

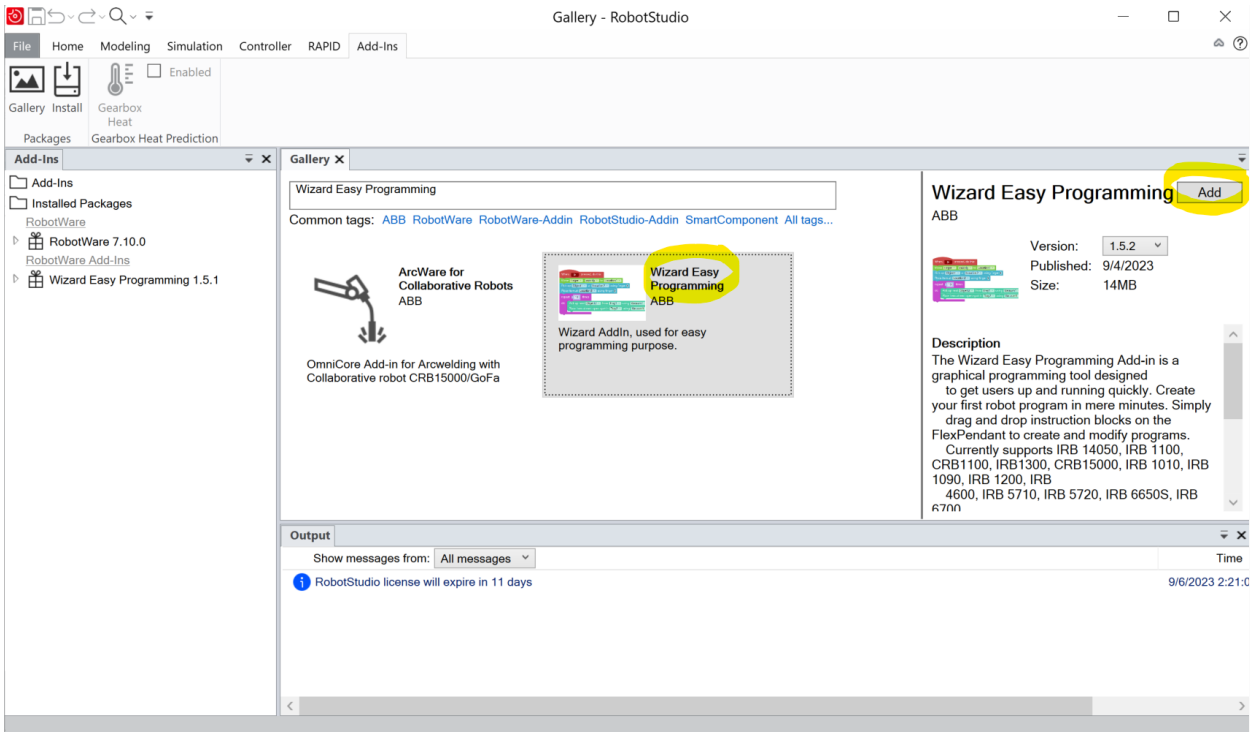
Industrial robots are operated by computers known as robot controllers. Installing a new controller is the first step to simulating our collaborative robot on your machine.

1. Installing RobotWare

As standard computers, robot controllers run an operating system. ABB's operating system is known as RobotWare. Go to the **Add-Ins** tab in RobotStudio and look for **RobotWare for OmniCore** in the gallery text field. Select it. A description of the system will appear on the right side of RobotStudio. Click on the **Add** button.



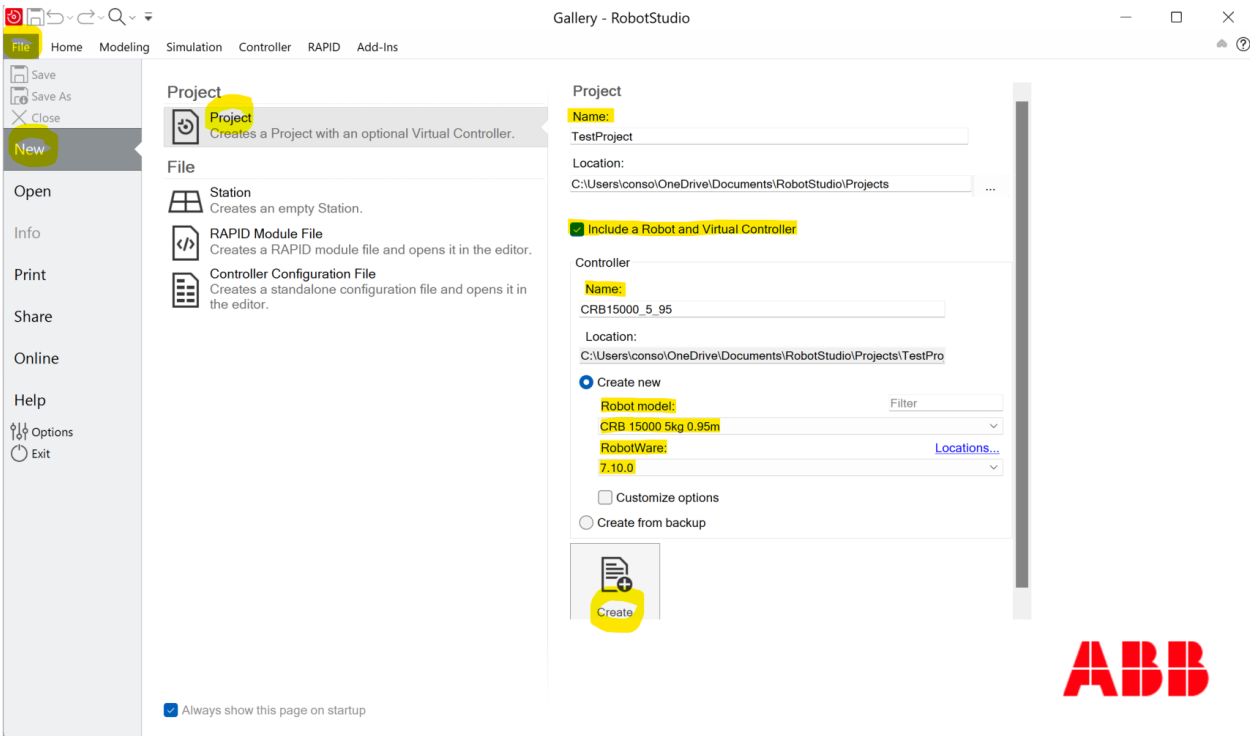
In our experiment, we will use the block-based environment from RobotWare. To install it, look for **Wizard Easy Programming** on the text field of the gallery (as you did in the first step). Once again, select it and click the **Add** button to install it on your computer.



To make sure all the dependencies were installed, restart RobotStudio.

2. Creating a new project

Go to the **File** tab and click on **New**. Select **Project** as your option. On the right-hand side, give the project a name (e.g., SeminarProject). Ensure the option **“Include a Robot and Virtual Controller”** is selected. In the controller form, give your robot a name or leave it as it is. Select the **Create new** option if it is not selected already. In the robot model dropdown menu, select the **CRB 15000 5kg 0.95m** (be careful as other models have similar names). In the RobotWare dropdown, select the latest version installed on your computer and click the **Create** button.

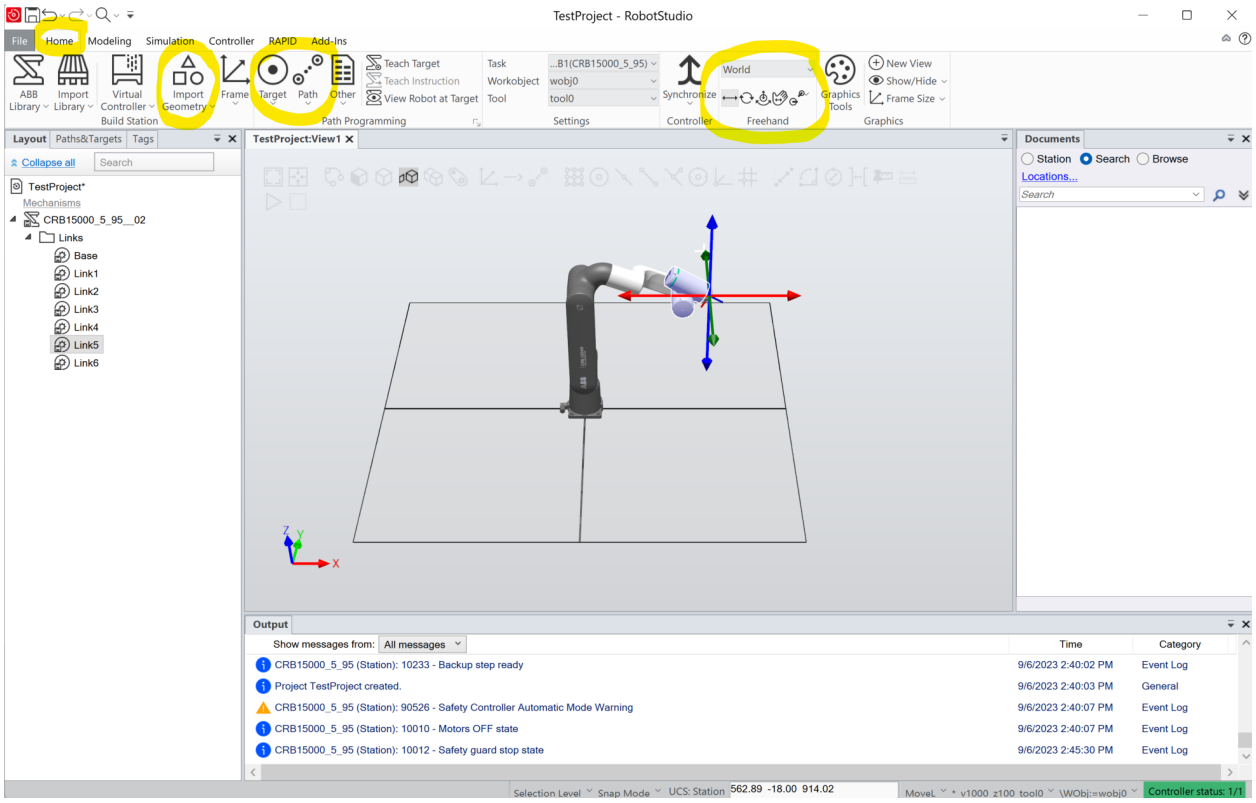


You will be moved to the Home tab. Wait until RobotStudio finishes creating your new project (Check the green progress bar on the bottom right).

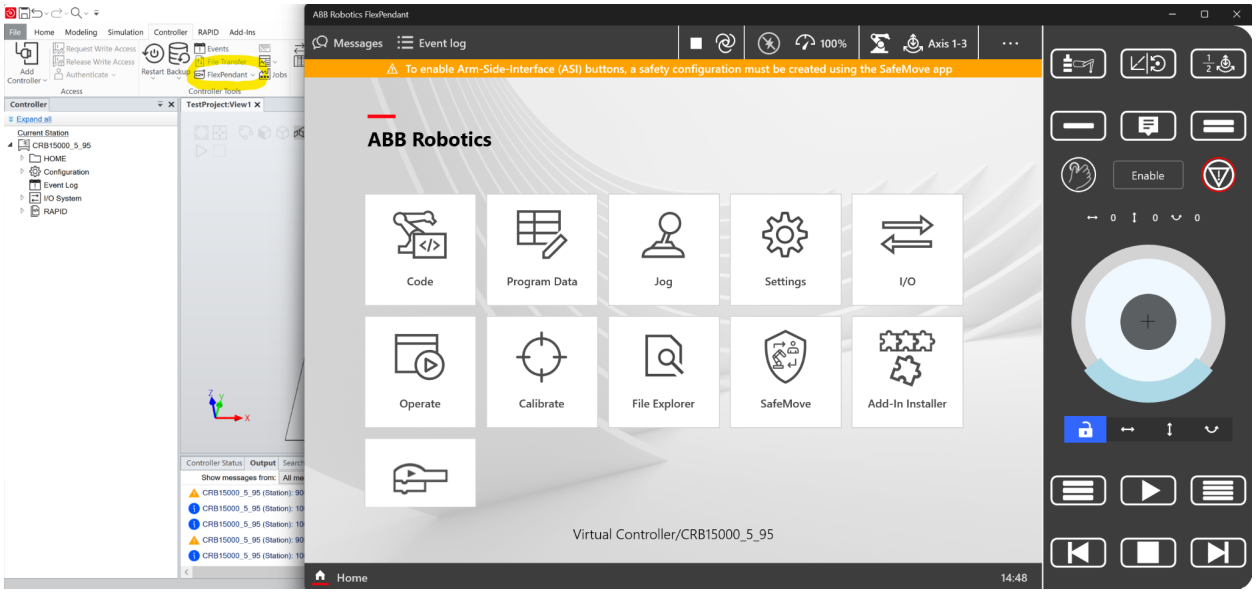
3. Playing with your new robot

Excellent, you have a new robot! Now, it is time to explore RobotStudio and learn how to use it. The only tabs you should focus on are:

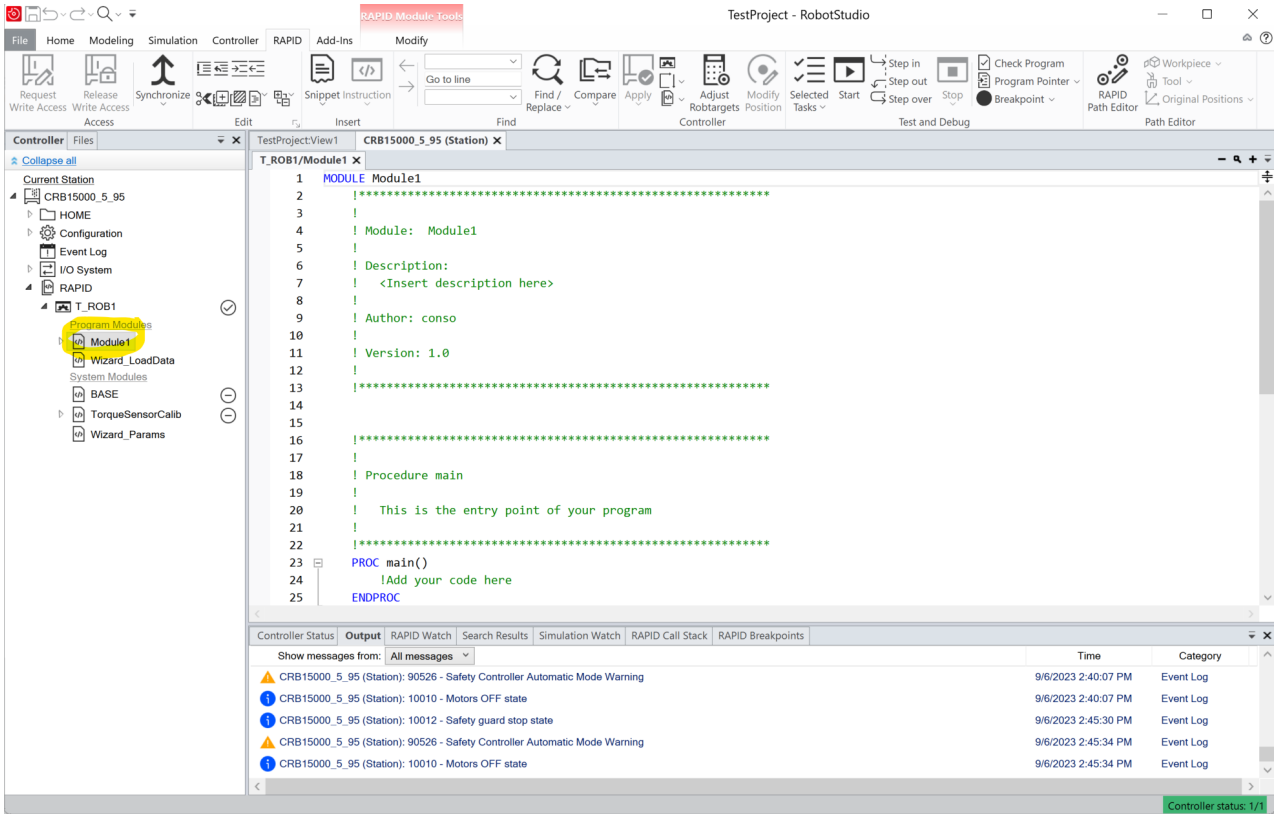
- **Home tab:** In this tab, you can create targets, paths, move the robot using the “Freehand” tool, and import 3D models from other programs.



- **Controller tab:** In this tab, you can simulate a teaching pendant in a physical environment. Don't worry about the other options on this tab; just play with the teaching pendant by clicking the **FlexPendant** button.



- RAPID tab: This is where new programs are developed (outside the block-based environment). Start playing with it by selecting a Module on your controller as follows:



4. Explore the documentation files

There are a lot of things you can do in RobotStudio. As said earlier, focus on the tabs described above. Use ABB documentation to find new things to do on these tabs:

- **RobotStudio manual:** https://search.abb.com/library/Download.aspx?DocumentID=3HAC032104-001&LanguageCode=en&DocumentPartId=&Action=Launch
- **RAPID manual:** https://library.e.abb.com/public/688894b98123f87bc1257cc50044e809/Technical%20reference%20manual_RAPID_3HAC16581-1_revJ_en.pdf
- **Pick and place tutorial:** https://www.youtube.com/watch?v=ohePUt-NylU
- More stuff is available on the ABB library and Youtube! https://library.abb.com/