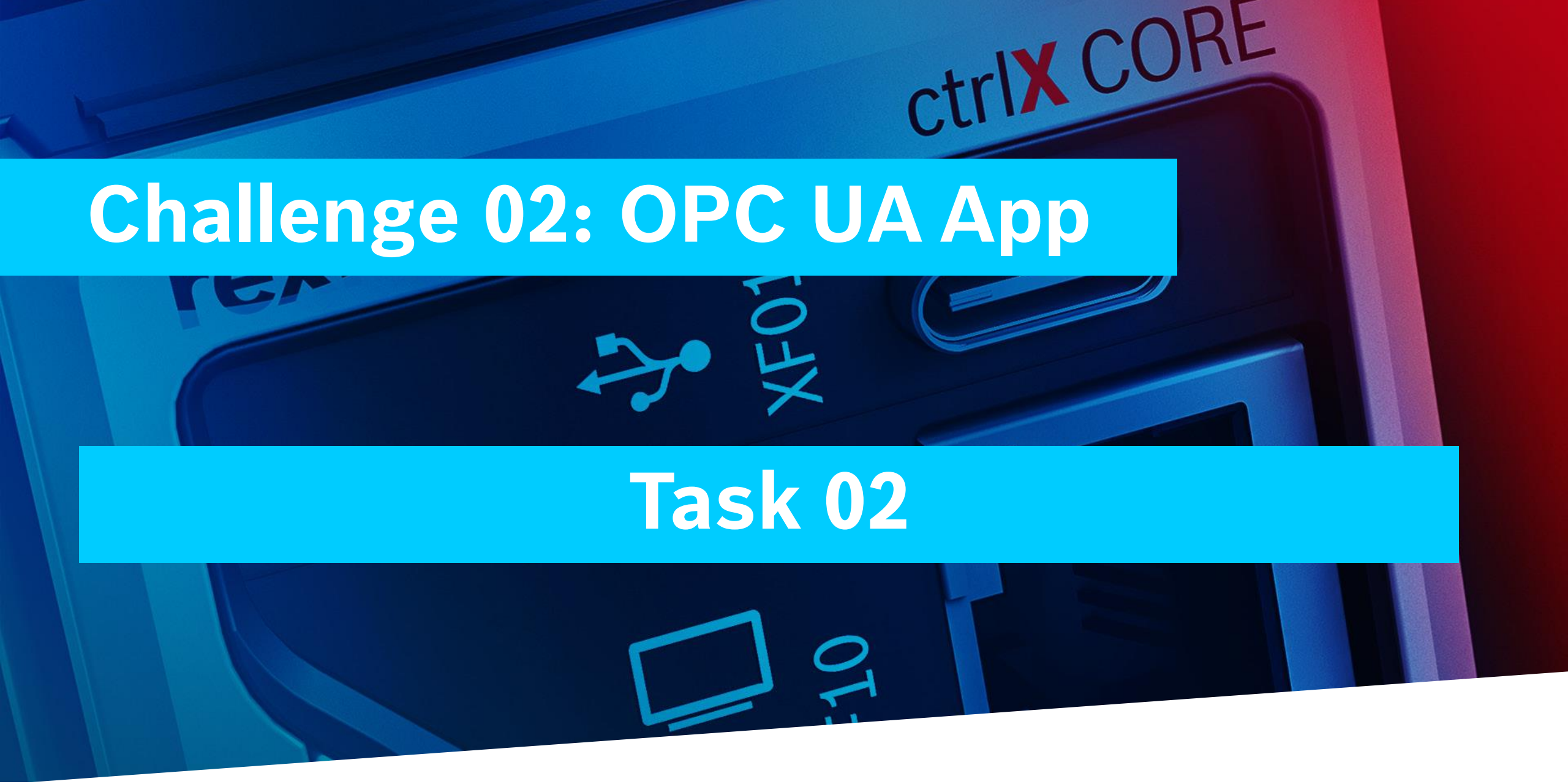

Challenge 02: OPC UA App

Task 02

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Challenge 02: ctrlX OPC UA App | Task 02

Description

From Task 1, you should be able to monitor the status of the inputs and outputs without using the ctrlX PLC Engineering and the ctrlX Data Layer interface. Now you are given the task to control the system remotely. You should be able to trigger the system either on or off but without direct interaction with the physical push buttons, ctrlX PLC Engineering interface and the ctrlX Data Layer.

Task

This task will test your understanding on Machine-to-Machine (M2M) communication using OPC UA and remotely monitoring and controlling a system.

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Safety instructions for the project exercise

In order to ensure the operational capability and to identify the possible hazards of machines and systems, the safety regulations must be observed before and during the order execution.

The ctrlX CORE may only be operated in technically perfect condition. The intended use, performance data and operating conditions may not be changed. No protective devices/components may be deactivated.

In case of emergency, failure or other irregularities:

- Before connecting or disconnecting any electrical components, ensure that the power to the ctrlX CORE unit and associated equipment is turned off.

Challenge 02: ctrlX OPC UA App | Task 02

Steps

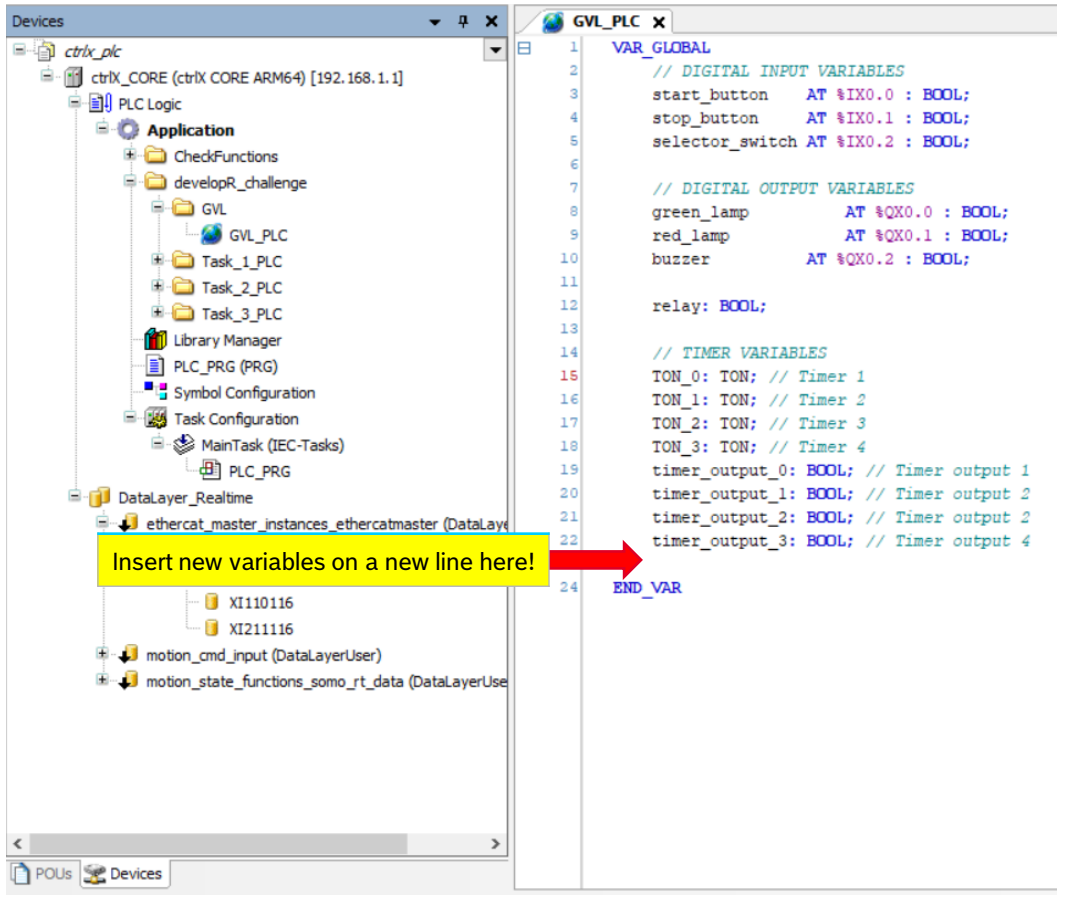
1. For Task 2, you need to make some adjustments to “**Task_2_PLC**” POU and “**GVL_PLC**” global variable list. Follow the steps below:

Add new Variables

- Add the variables below to the existing **GVL_PLC**:

Designation	Variable	Type
Start Button for OPC UA	start_button_opc	BOOL
Start Button for OPC UA	stop_button_opc	BOOL

- Add the new variables to the symbol configuration (Refer to Step 3 of Setting up Symbol Configuration)



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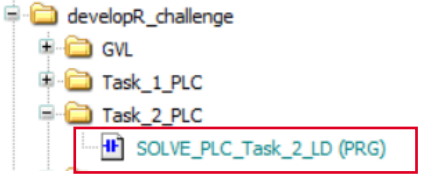
Challenge 02: ctrlX OPC UA App | Task 02

Steps

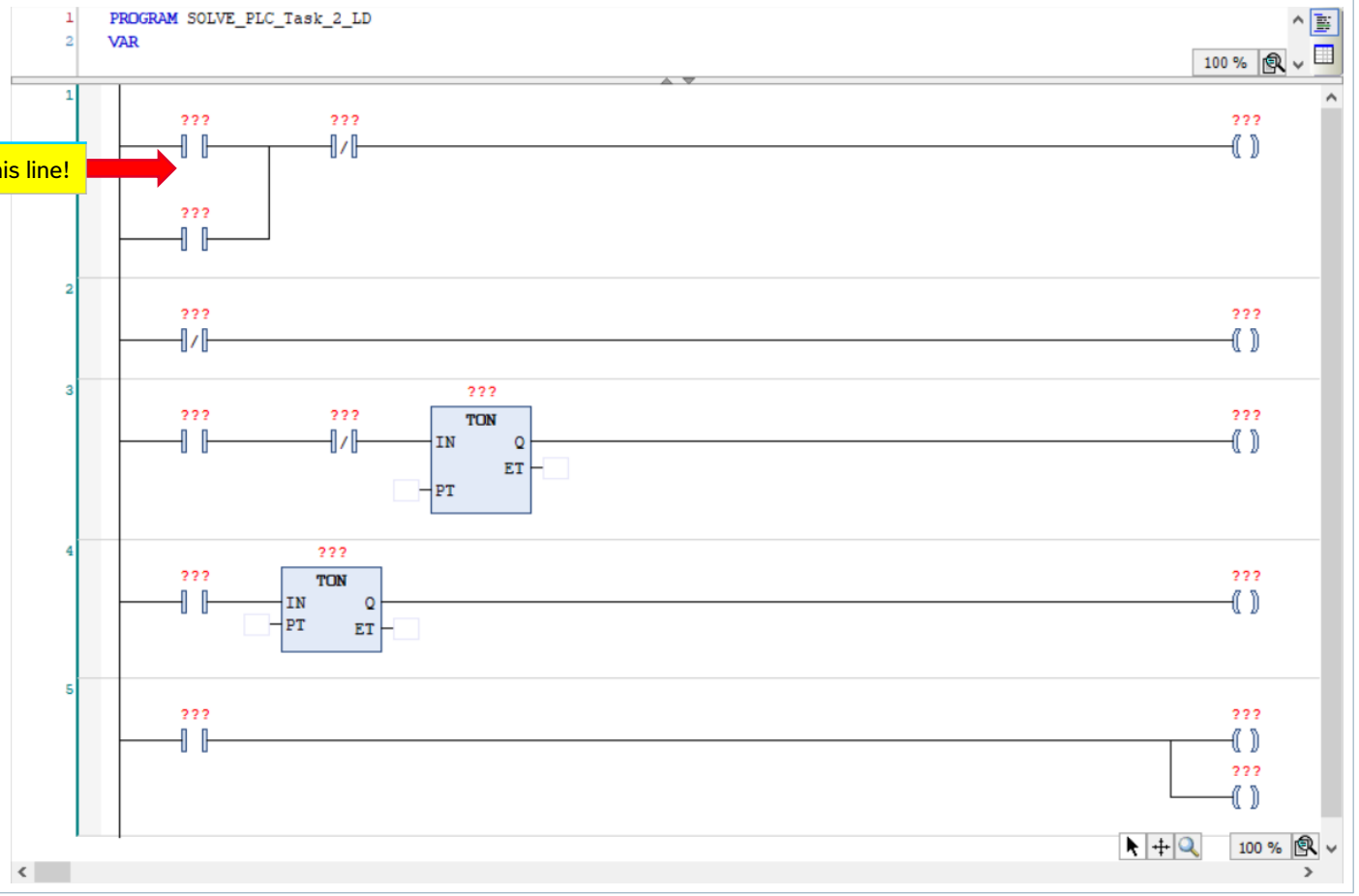
1. For Task 2, you need to make some adjustments to “**Task_2_PLC**” POU and “**GVL_PLC**” global variable list. Follow the steps below:

Modify Task 2 PLC Program (POU)

- The POU for Task 2 is located inside “**Task_2_PLC**” folder



- Open the “**SOLVE_PLC_Task_2_LD (PRG)**”
- This will open a POU editor (right photo)
- The PLC program however is not yet in working condition
- Insert the newly added variables on Network Line 1 of the POU
- Follow this logic:
  - **start_button OR start_button_opc**
  - **stop_button OR stop_button_opc**
- Make sure to Save your program (with Ctrl + S)
- After you have inserted the logic above, follow the steps to download the POU to the ctrlX CORE



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Challenge 02: ctrlX OPC UA App | Task 02

Steps

2. After you have done step 1, follow the steps below.

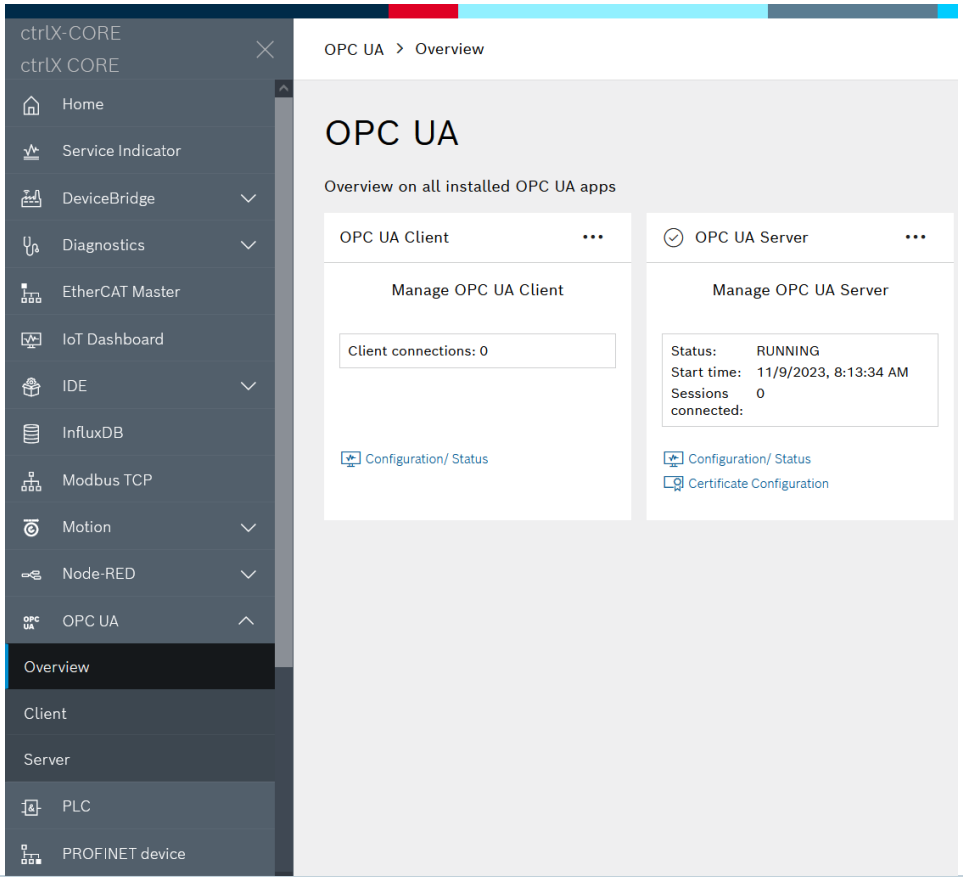
Modify writable variables remotely with OPC UA

Step 1: Launch the UA Test Client (from Task 1)

- Open the OPC UA test client software

Step 2: Connect to the ctrlX CORE OPC UA Server

- In the test client, look for an option to connect or add a server.
- You'll need to provide the endpoint information for the OPC UA server you want to monitor remotely. This includes the server's URL or IP address and endpoint URL.



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Challenge 02: ctrlX OPC UA App | Task 02

Steps

2. After you have done step 1, follow the steps below.

Modify writable variables remotely with OPC UA

Step 3: Browse the Address Space

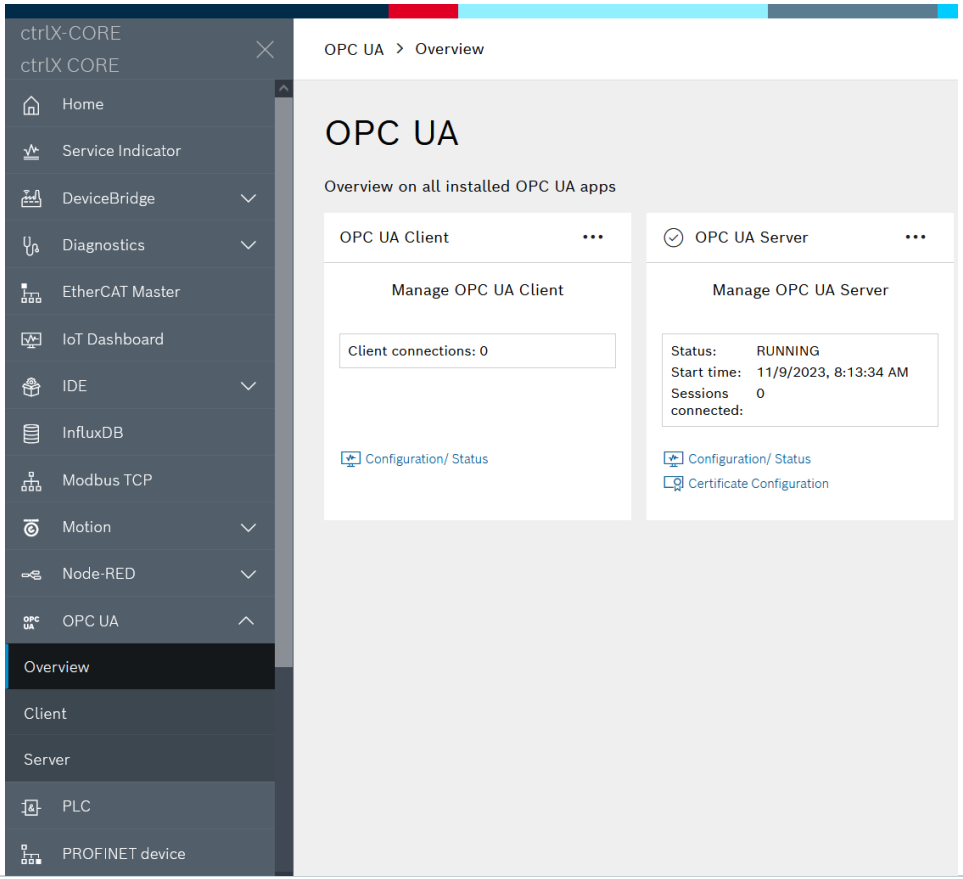
- After connecting, you can typically browse the address space of the OPC UA server. This is like navigating through the available data points and variables.

Step 4: Monitor Variables

- Once connected, you can monitor specific variables or nodes within the OPC UA server.

Step 5: Perform Remote Monitoring and Modify the Values of Writable Variables

- As you are monitoring variables, you may also be able to write values to variables with the OPC UA server.



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Challenge 02: ctrlX OPC UA App | Task 02

Steps

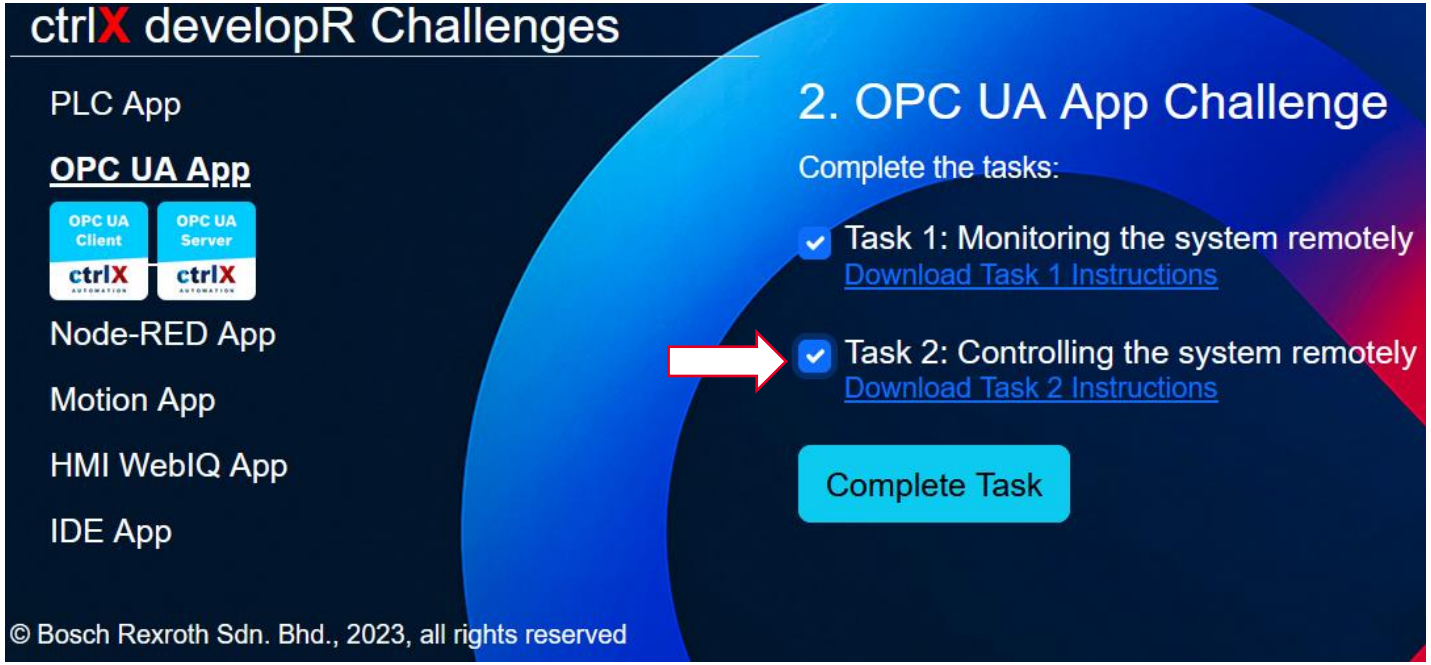
3. Once you have completed Task 2, follow the steps below.

How to complete Task 2 OPC UA App

- You can test your solution against the Task description
- Once it satisfies the requirements, confirm that you have completed the task by informing the available instructor for verification
- In the ctrlX developR challenge website, under the OPC UA App challenge section, tick [✓] the Task 2 checkbox

Congratulations, you've completed the tasks!

Follow the next step to complete the challenge!



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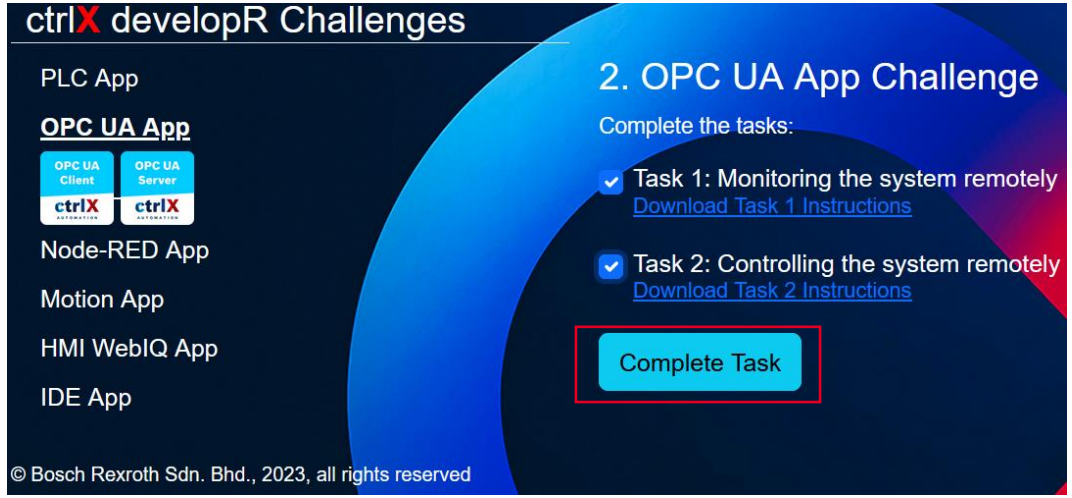
Challenge 02: ctrlX OPC UA App | Task 02

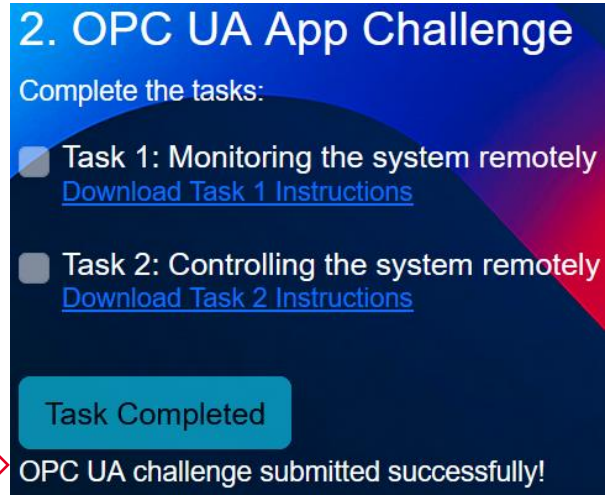
Steps

2. Once you have completed Task 1 and Task 2, follow the steps below.

How to complete the OPC UA App Challenge

- Finally, click on the "**Complete Task**" button





- Once pressed, the button text will change to "Task Completed" and you will be notified with a message that the challenge has been successfully submitted.
- By pressing the "Complete Task" button, the duration it takes for the team to complete the challenge will be automatically submitted.
- Submission only can be done once per challenge.

Congratulations, you've successfully completed the OPC UA App challenge! Amazing!

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Challenge 02: OPC UA App

Congratulations!

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