Robotics, Integration, and Automation

PLC PROJECT SETUP

Name	Class/Period	Date

1. Overview

In this lab activity, you will create a new PLC programming project. You will flash the PLC to update its firmware and then save the project for future use.

2. Performance Objectives

After completing this lab activity, you will be able to:

- Create a new PLC programming project.
- Select a communications path.
- Update PLC firmware.

3. Required Materials

You need the following materials to complete the lab activity:

- SmartCart 4.0
- Computer
- Ethernet cables
- USB-B cable

4. Required Software

Logix Designer is required for this lab activity. It is included in the Studio 5000 suite. Ensure that the software is installed on your PC and has a valid license. If you are having problems installing or licensing the software, contact your instructor or IT manager.

5. Inventory and Safety

Before beginning the lab activity, review this checklist and mark off each item as you complete it.

- ☐ All hardware components are available for this lab activity.
- ☐ Hands, hair, and clothing are securely away from the work area.
- ☐ The work area is clean and devoid of food or drink.
- ☐ Review the SmartCart 4.0 safety guidelines.
- ☐ Read through the entirety of this lab activity to familiarize yourself with the requirements.

6. Lab Activity

6.1. Preliminary Steps

In this task, you will return the states of your workstation (computer) and the PLC to the states that they were in at the end of the previous lab activity. For the complete procedures to the steps in this task refer to **Activity 3-4 (LAB): Conceiving the SmartCart Network**.

1. Turn the I/O box on and wait for the PLC to boot up.
2. Perform a Stage 2 Reset. (This procedure is listed in the Reset steps of the previous lab activity.)
3. Confirm that the PLC's firmware is the out-of-the-box revision. A *FIRMWARE INSTALLATION REQUIRED* message can be seen on the PLC's scrolling screen.
4. Set the workstation's static IP address to **192.168.0.1**.
5. Use the USB-B cable and RSLinx Classic to set PLC's A1 port's IP address to **192.168.0.2**.

ⓘ ***Note:*** *You may use different, legal static IP addresses if desired.*

6. Remove the USB-B cable and confirm network connectivity between the PLC and the workstation.

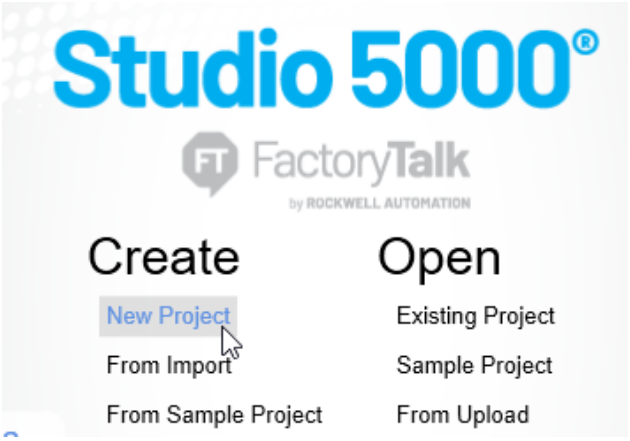
6.2. Creating a New PLC Programming Project

In this section, you will create a new Studio 5000 Logix Designer project. The project will include your CompactLogix. The hardware modules for the other devices will be added in future lab activities.

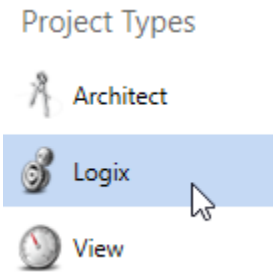
Perform these steps.

1. Run Studio 5000.

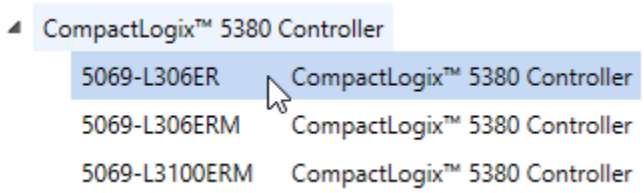
2. In the start window, click **New Project**.



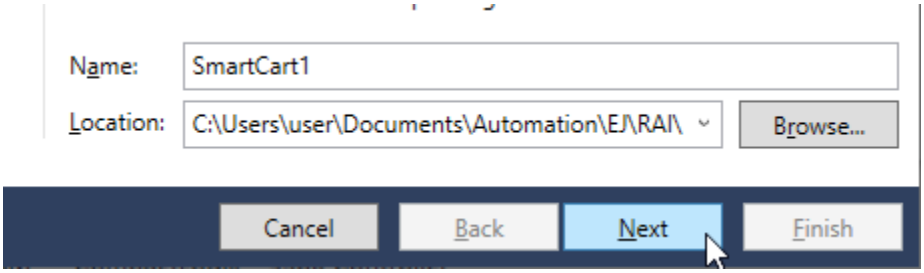
3. On the left side of the New Project window, select the **Logix** type.



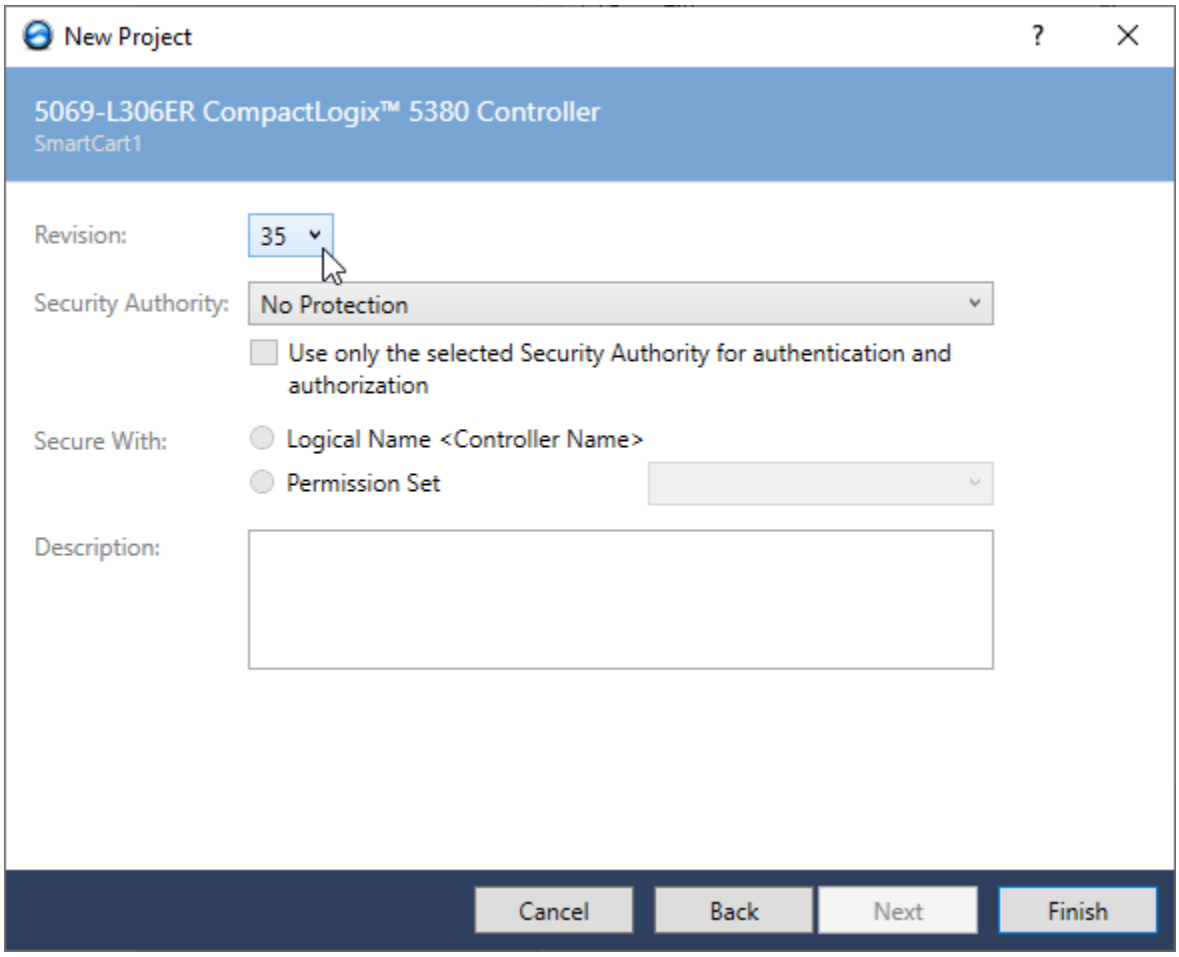
4. Select your PLC.



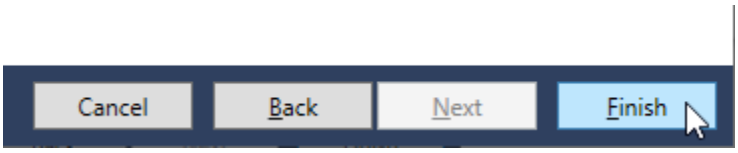
5. Give the project a good name and an appropriate folder location, and then click **Next**.



6. Select the latest available revision. This is the software revision, and it must match the firmware revision. Later in the lab activity, you will flash the PLC with the matching firmware revision.

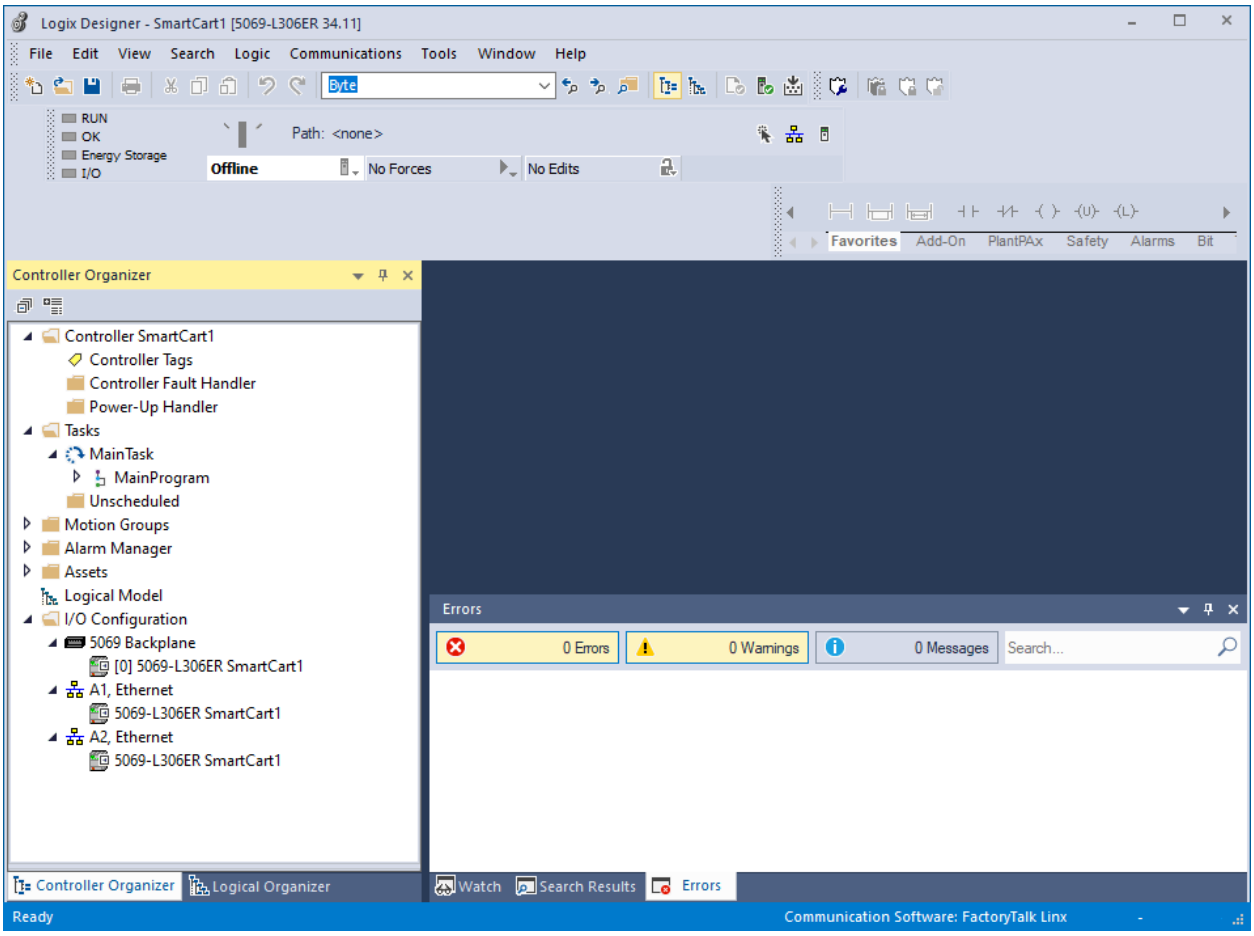


7. Click **Finish**.

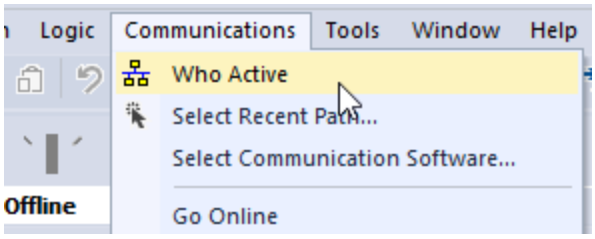


8. The project opens with your PLC in the Controller Organizer. You can see that the default for the project is dual-IP mode, as both Ethernet ports A1 and A2 are present in the I/O Configuration folder. Note also that you are offline.

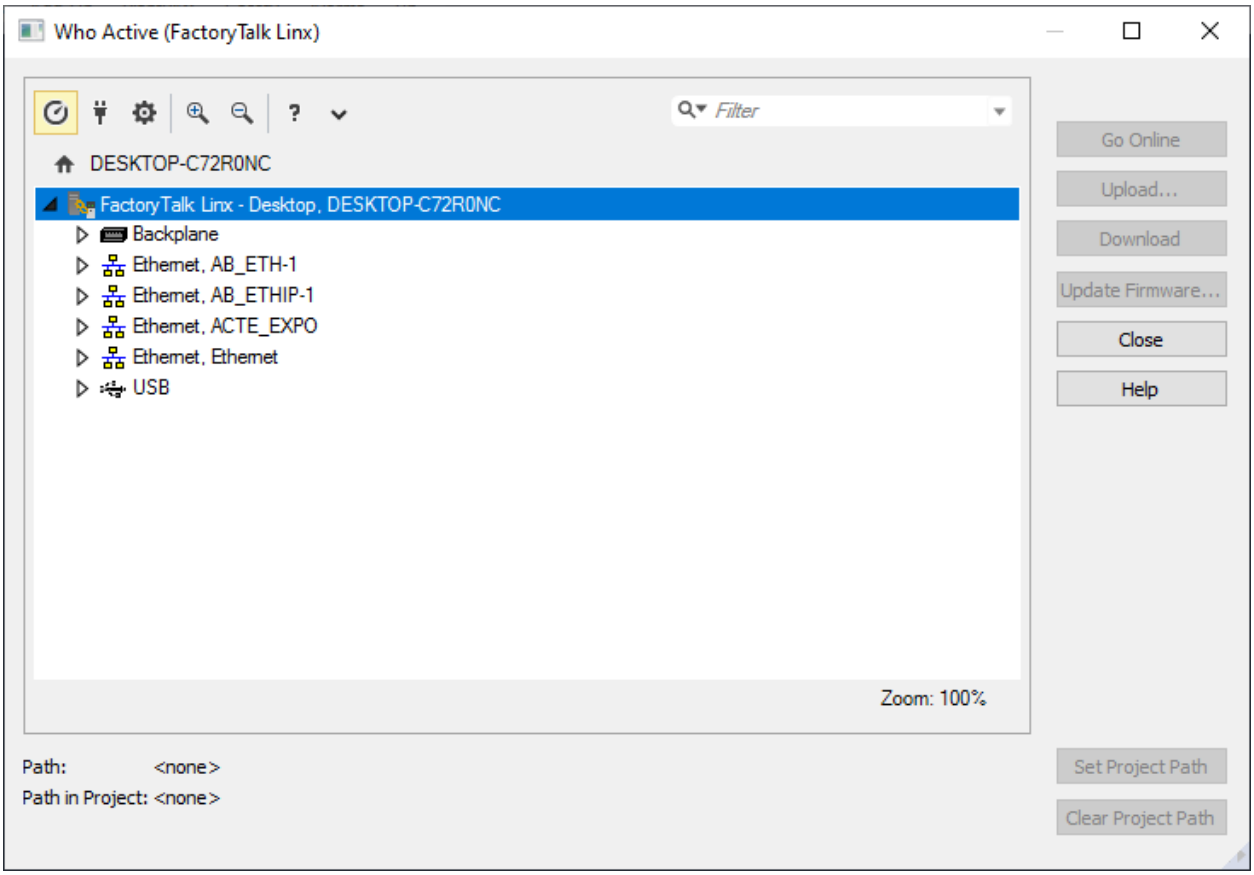
ⓘ ***Note:*** *Linear IP may be used for all projects. If, after the factory reset, your controller has returned to linear IP mode, you may use this IP mode.*



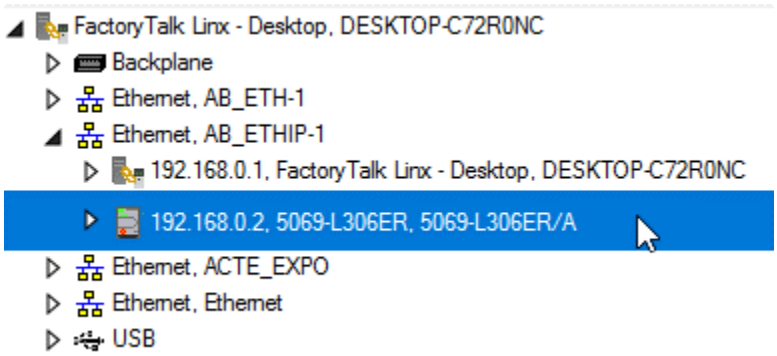
9. Navigate to **Communications > Who Active**.



The Who Active window is open. Recall that Who Active (also called FactoryTalk Linx) is a browser that allows you to set a communications path to the PLC.

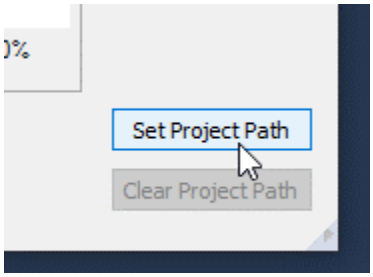


10. Navigate to and select your PLC. It is in the Ethernet, AB_ETHIP-1 drive.

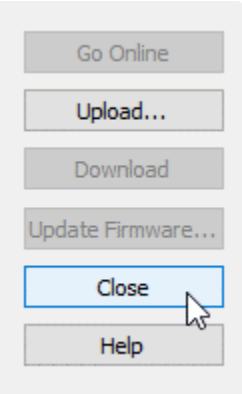


ⓘ ***Did you know?*** *ETHIP is short for Ethernet/IP.*

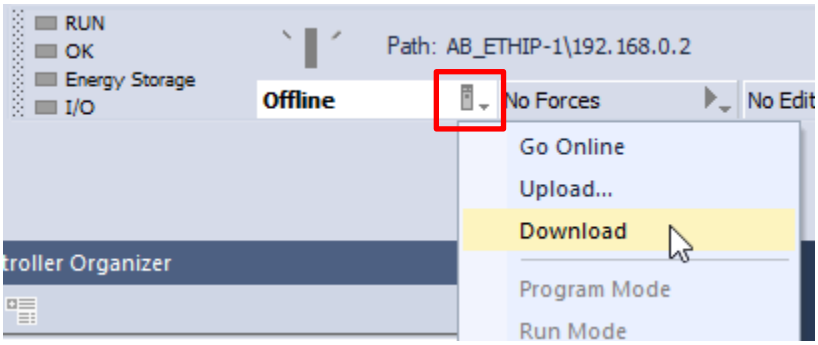
11. Click **Set Project Path**.



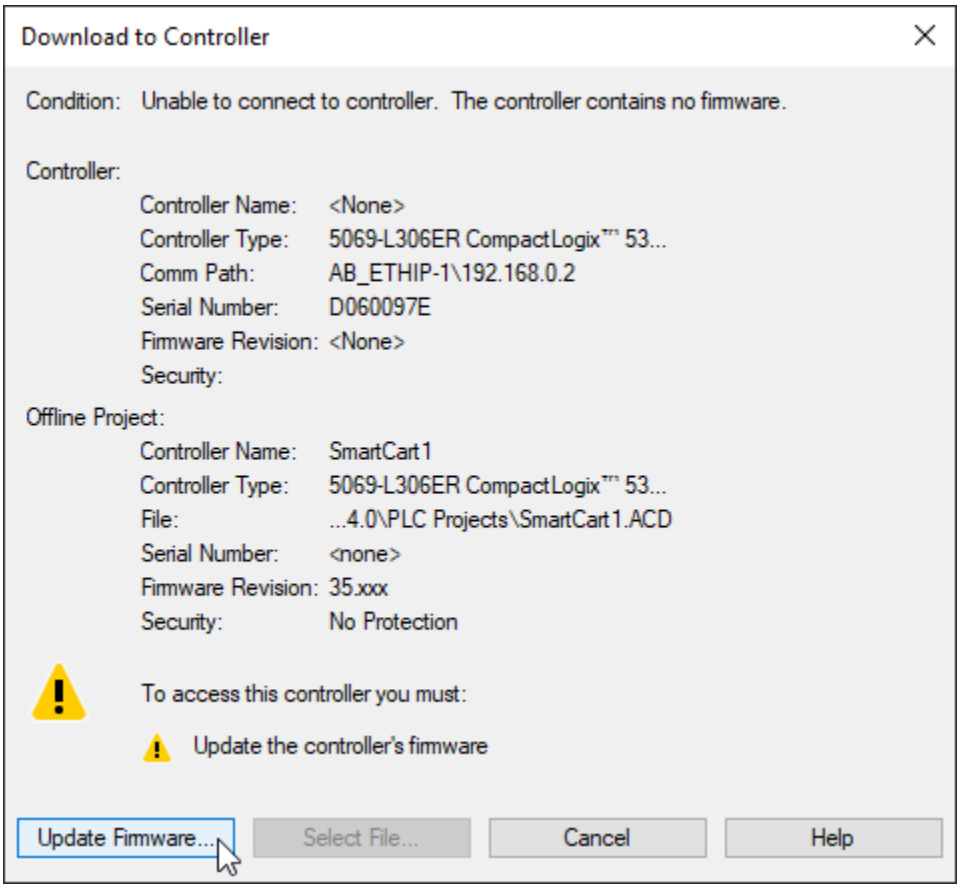
12. Close Who Active.



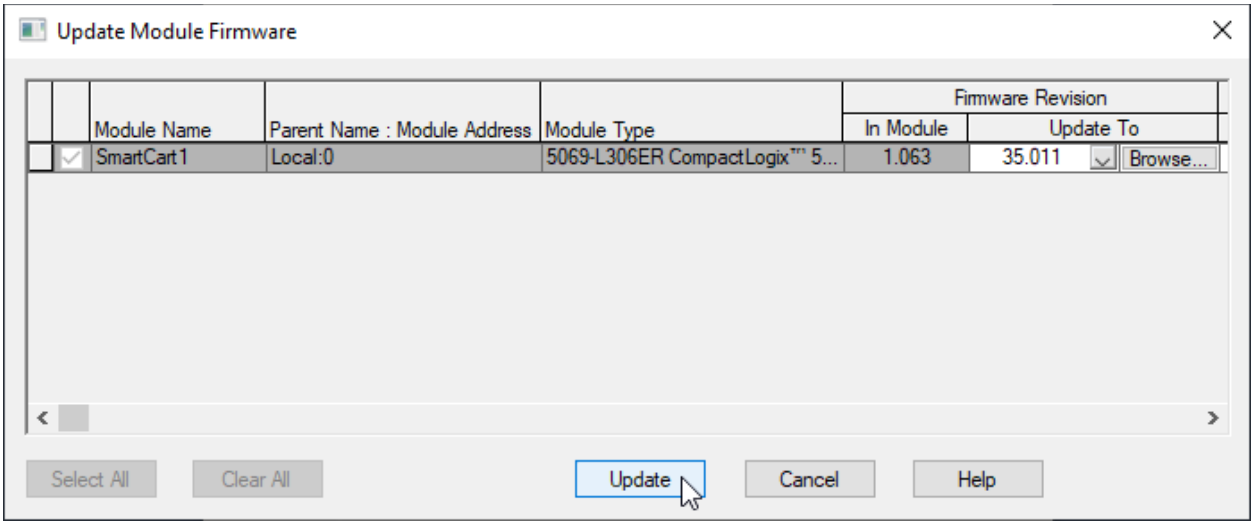
13. In the PLC status area, click the PLC icon, and then select **Download**.



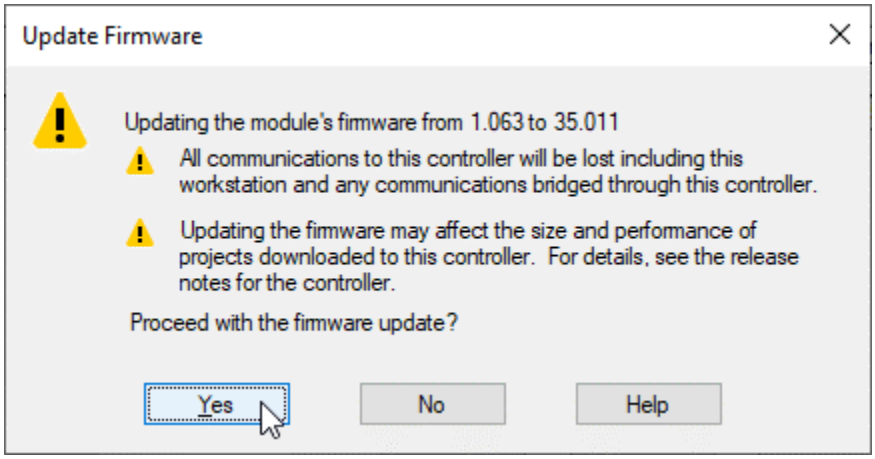
14. A dialog opens prompting you to update the firmware. Read the dialog, and then click Update Firmware.



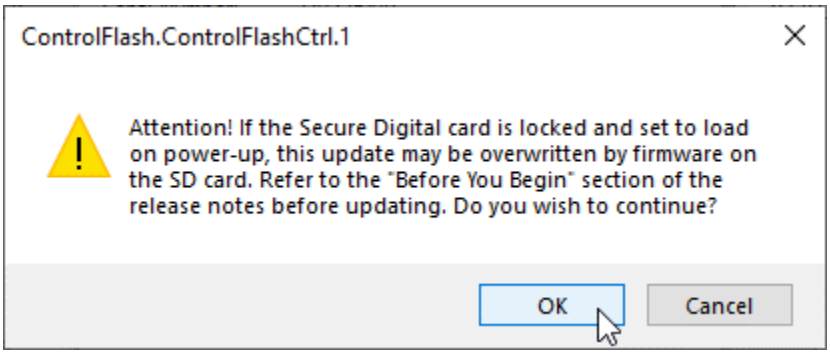
15. Select the latest firmware revision, and then click **Update**.



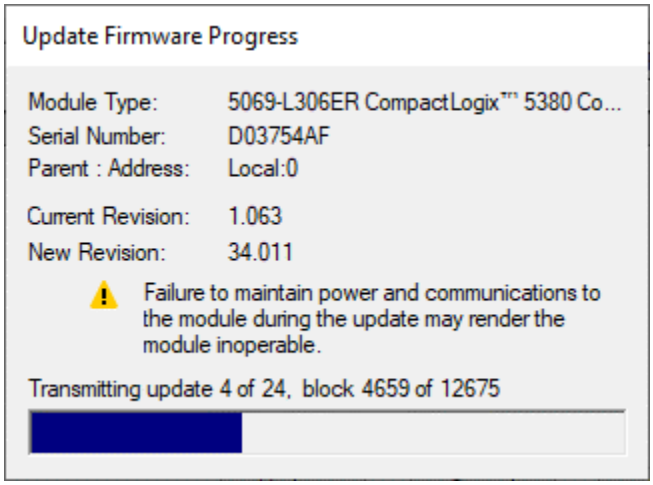
16. Confirm the firmware update by clicking **Yes**.



17. You are prompted by a warning about the SD card. Click **OK**.

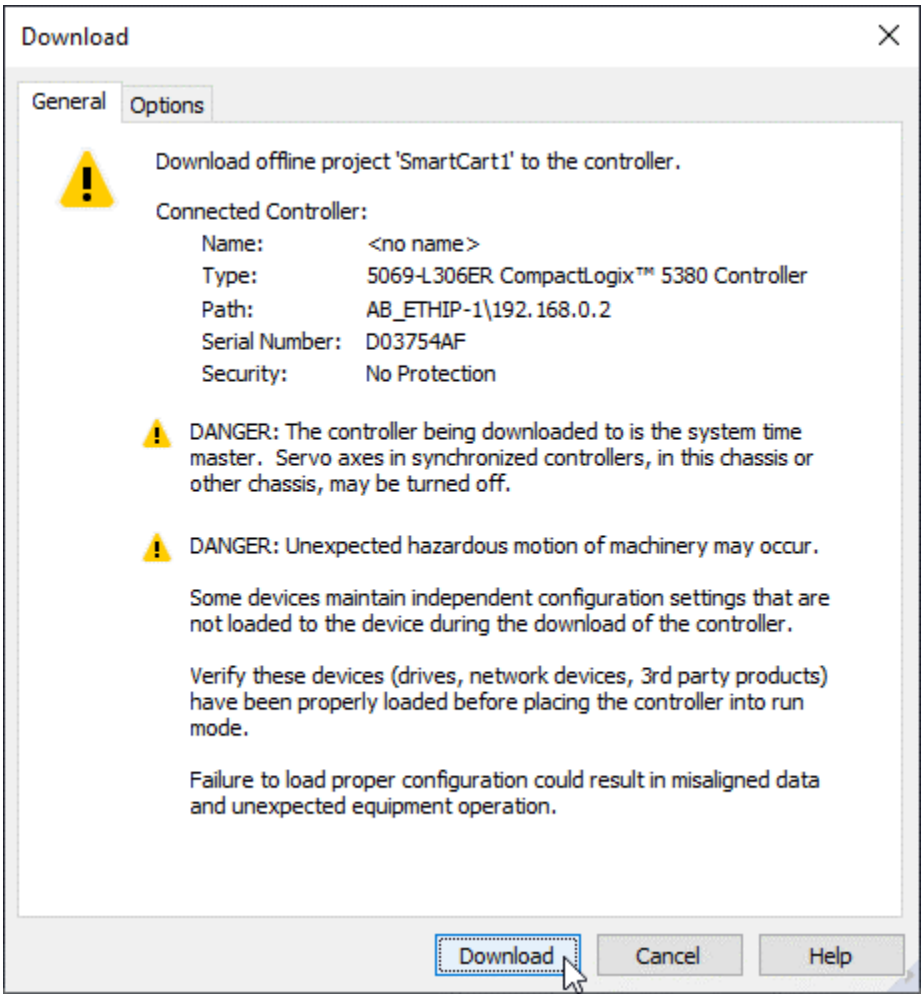


18. Wait ***patiently*** for the firmware to update. Do not perform any other actions with the PLC or LogixDesigner in the meantime.

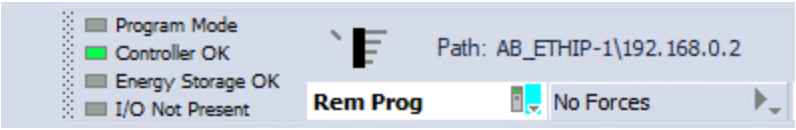


ⓘ ***Did you know?*** *A firmware update is a great opportunity for getting caught up on the latest current events and celebrity gossip.*

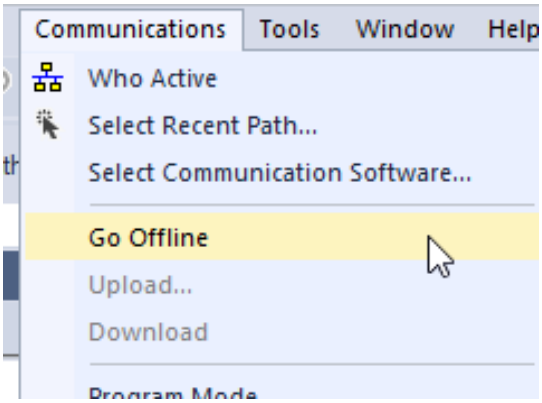
19. After the firmware update is complete, the Download window is displayed. Transfer the project to the PLC by clicking **Download**.



The PLC is now online in remote program mode.

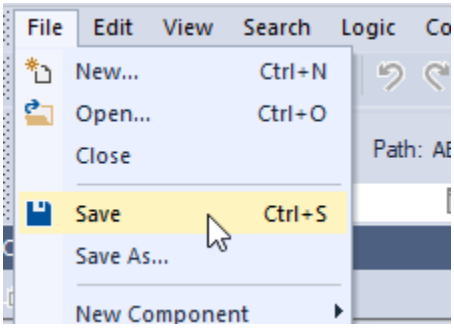


20. Take the PLC offline by navigating to **Communications > Offline**.



ⓘ ***Note:*** *You can also go offline by clicking the controller icon next to Rem Prog and selecting Go Offline.*

21. Save your project (**File > Save** or **Ctrl + S** on your keyboard) in your personal folder. You will use this project in a future lab activity.



7. Authentic Skill Assessment

Have your instructor verify that your work meets the requirements in the performance objectives and sign below. Keep this lab activity sheet for future reference.

Instructor Signature	Date

8. Reset Steps

This lab activity does not have any reset steps.

9. Shutdown

Unless instructed otherwise by your instructor, review and complete each of the items on the checklist below.

☐ Power off the I/O box.