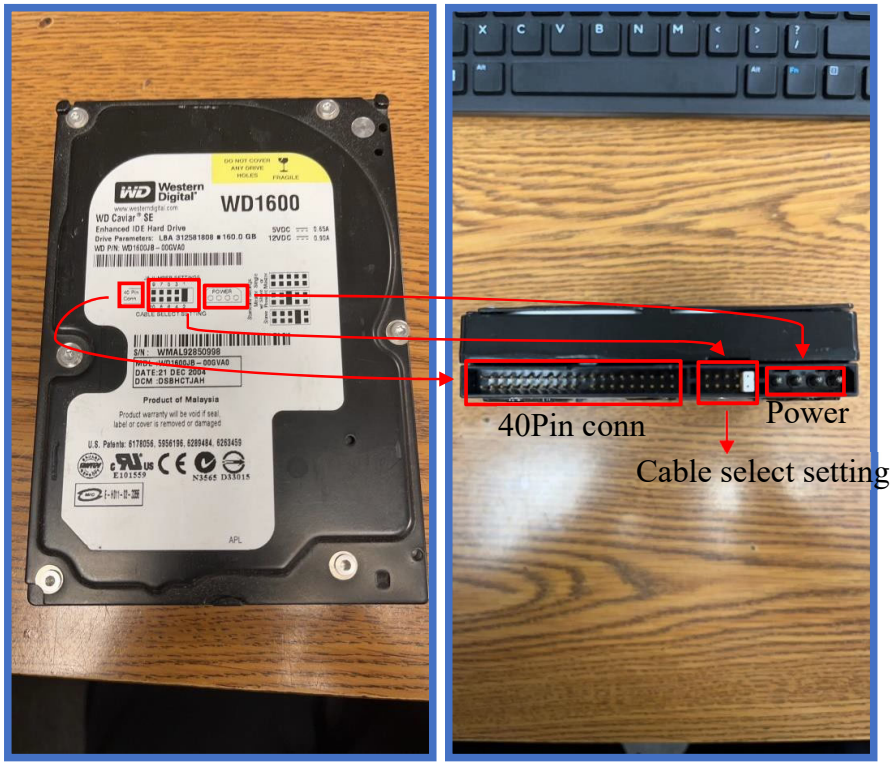
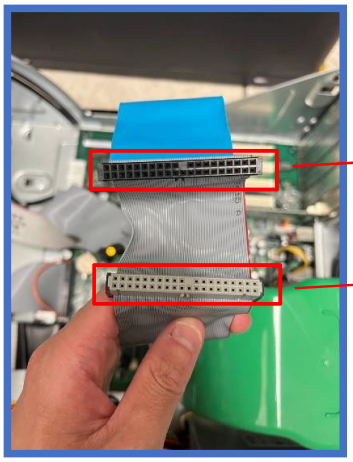
Hard Drives Backup

Sometimes the hard drive of a production-line PC becomes infected with a virus, making it unable to read files. To solve this issue, we prepare multiple backup hard drives in advance so the engineers can quickly replace them whenever necessary.



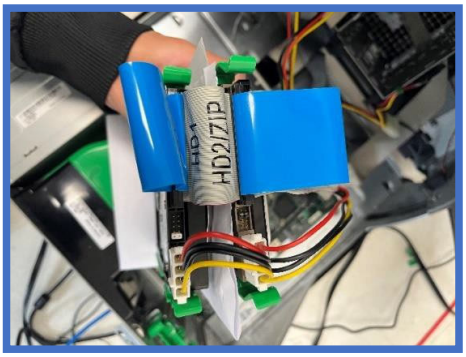


▲Figure.25

A. back up hard drive

1. Insert the floppy and plug in the cable

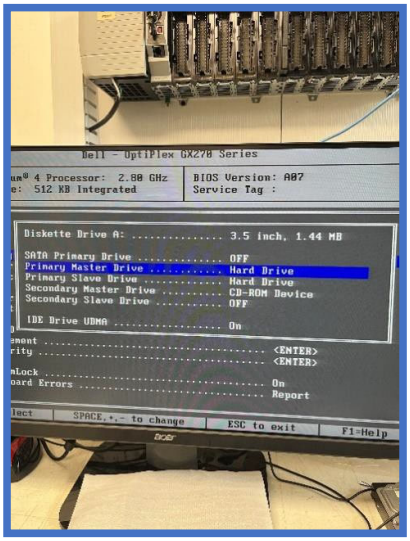
▲Figure.26



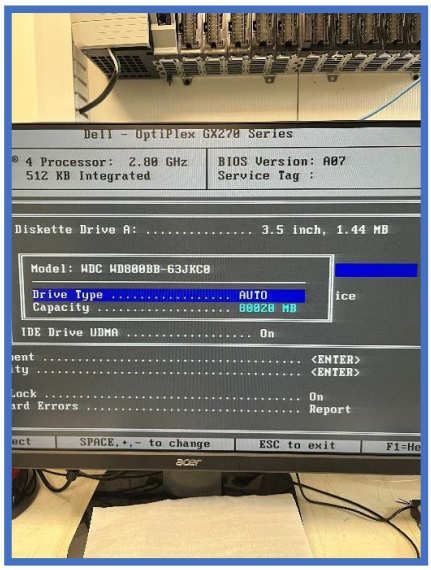
▲Figure.27

2. Press F2 to enter the BIOS, and finish the setting

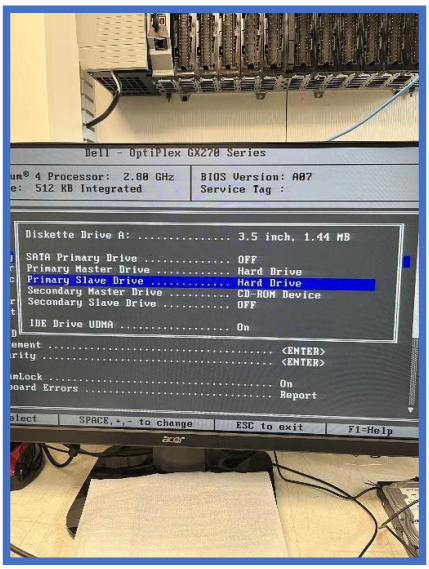
▲Figure.28



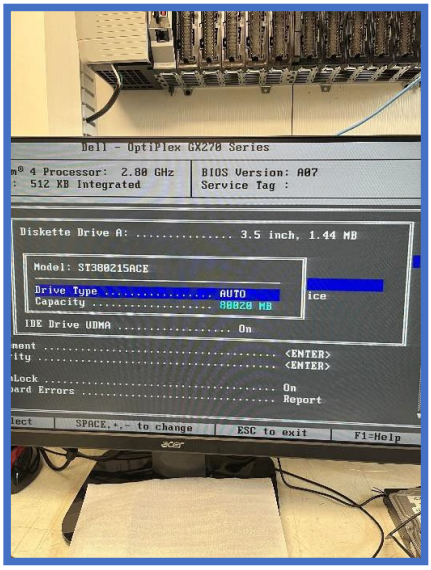
▲Figure.29



▲Figure.30

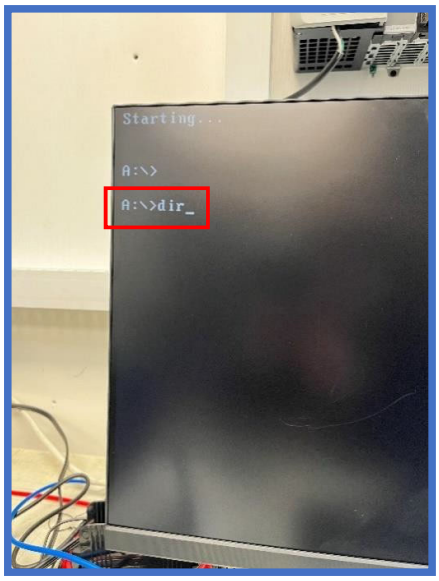


▲Figure.31

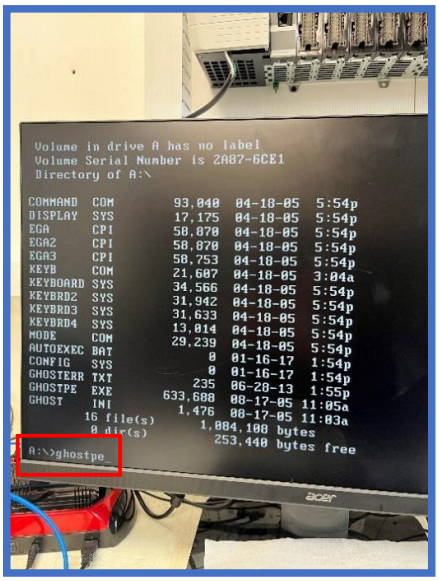


▲Figure.32

3.

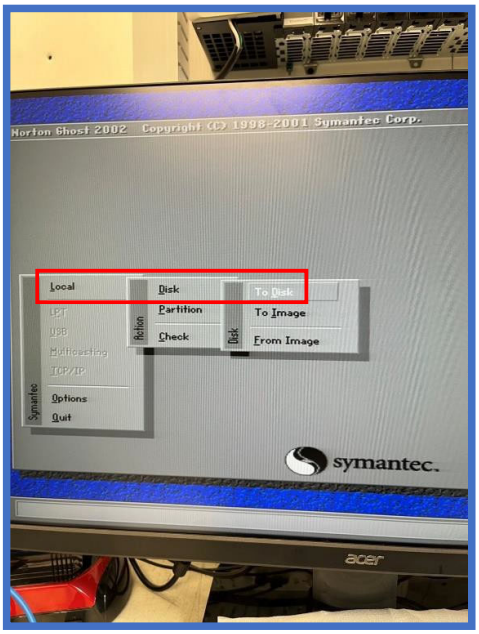


▲Figure.33



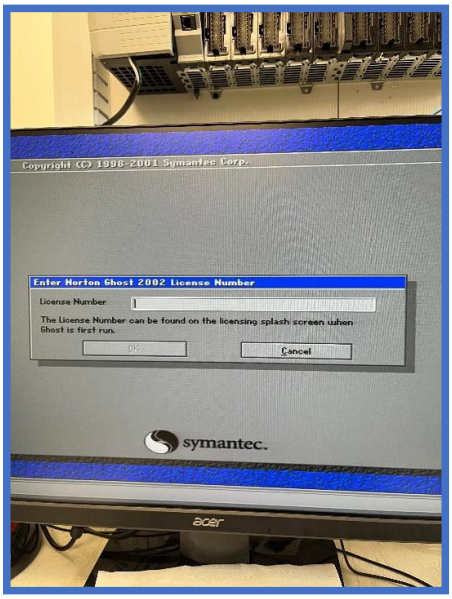
▲Figure.34

4.



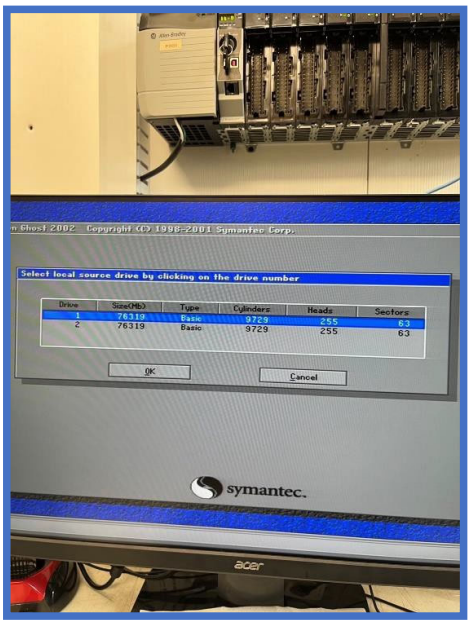
▲Figure.35

5.

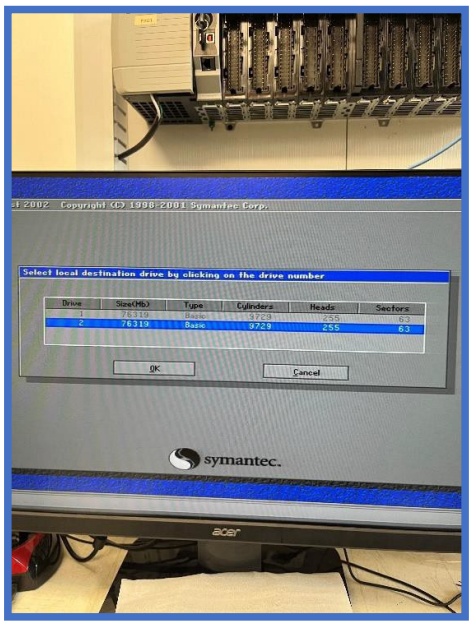


▲Figure.36

6. Make sure the source and destination are correct.

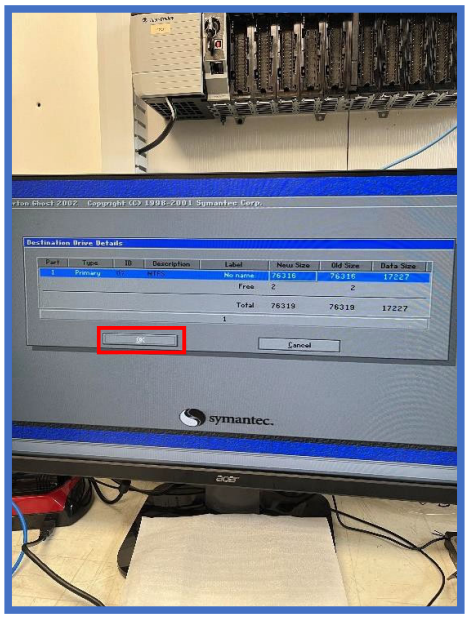


▲Figure.37



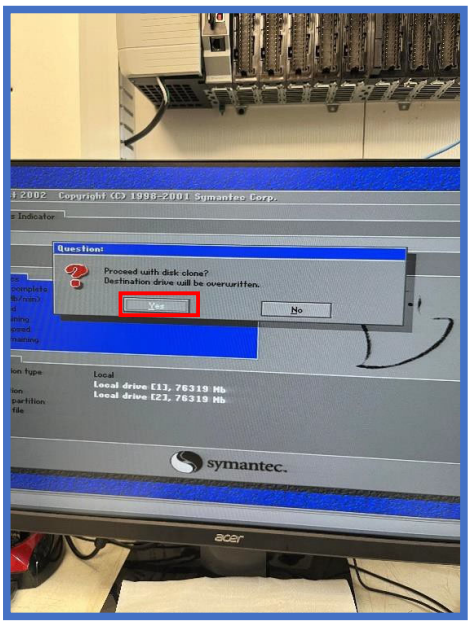
▲Figure.38

7.

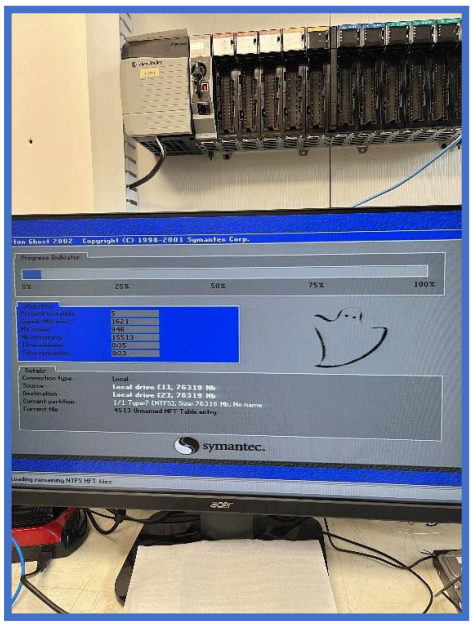


▲Figure.39

8.



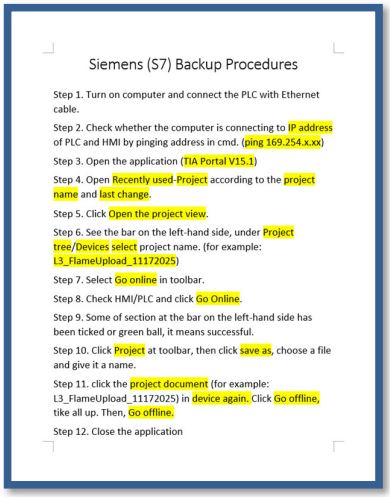
▲Figure.40



▲Figure.41

B. PLC programing back up

Before the facility shuts down, the most important task is to back up all PLC programs to prevent errors during the upgrade of both the PLCs and their software. According to my checklist, I need to back up around 50 PLC programs and 16 computer programs. Our facility uses four types of PLCs: Allen-Bradley, Mitsubishi, Siemens S5, and Siemens S7. Each one has its own backup procedure, so I had to learn every method individually. In addition, I created a detailed written procedure specifically for backing up the Siemens S7 system.



Siemens (S7) Backup Procedures

Step 1. Turn on computer and connect the PLC with Ethernet cable.

Step 2. Check whether the computer is connecting to IP address of PLC and HMI by pinging address in cmd. (ping 169.254.x.xx)

Step 3. Open the application (TIA Portal V15.1)

Step 4. Open Recently used-Project according to the project name and last change.

Step 5. Click Open the project view.

Step 6. See the bar on the left-hand side, under Project tree/Devices select project name. (for example: L3_FlameUpload_11172025)

Step 7. Select Go online in toolbar.

Step 8. Check HMI/PLC and click Go Online.

Step 9. Some of section at the bar on the left-hand side has been ticked or green ball, it means successful.

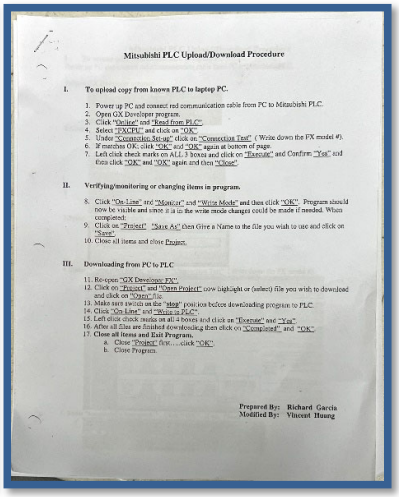
Step 10. Click Project at toolbar, then click save as, choose a file and give it a name.

Step 11. click the project document (for example: L3_FlameUpload_11172025) in device again. Click Go offline, tike all up. Then, Go offline.

Step 12. Close the application

▲Figure.42

Siemens S7 procedures



Mitsubishi PLC Upload/Download Procedure

I. To upload copy from known PLC to laptop PC.

1. Power up PC and connect red communication cable from PC to Mitsubishi PLC.
2. Open GX Developer program.
3. Click "Online" and "Read from PLC".
4. Select "FX CPU" and click on "OK".
5. Under "Connection Setup" click on "Connection Test". (Write down the FX model #).
6. If matches OK, click "OK" and "OK" again at bottom of page.
7. Left click check marks on ALL 3 boxes and click on "Execute" and Confirm "Yes" and then click "OK" and "OK" again and then "Close".

II. Verifying/monitoring or changing items in program.

8. Click "On Line" and "Monitor" and "Write Mode" and then click "OK". Program should now be visible and since it is in the write mode changes could be made if needed. When completed.
9. Click on "Project", "Save As" then Give a Name to the file you wish to use and click on "Save".
10. Close all items and close Project.

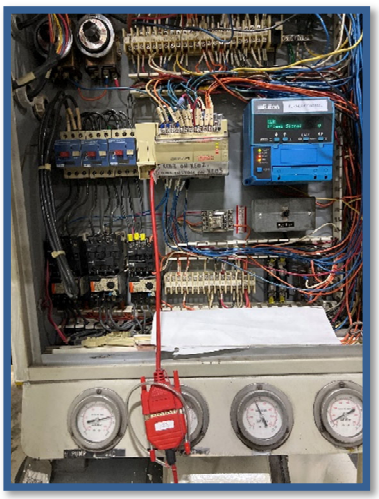
III. Downloading from PC to PLC

11. Re-open "GX Developer FX".
12. Click on "Project" and "Open Project" now highlight or (select) file you wish to download and click on "Open" file
13. Make sure switch on the "stop" position before downloading program to PLC.
14. Click "On Line" and "Write to PLC".
15. Left click check marks on all 4 boxes and click on "Execute" and "Yes".
16. After all files are finished downloading then click on "Completed", and "OK".
17. Close all Items and Exit Program.
    a. Close "Project" file.....click "OK".
    b. Close Program.

Prepared By: Richard Garcia
Modified By: Vincent Huang

▲Figure.43

Mitsubishi procedures



▲Figure.44

PLC Backup