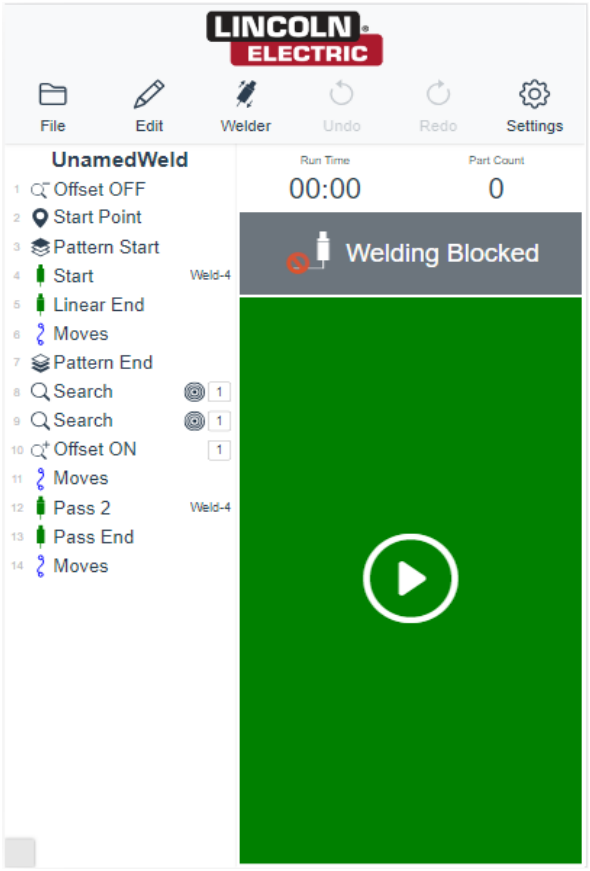
Cooper™ App CRX Software Update Guide



Issue Date 03/20/25

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Section 1: Prerequisites

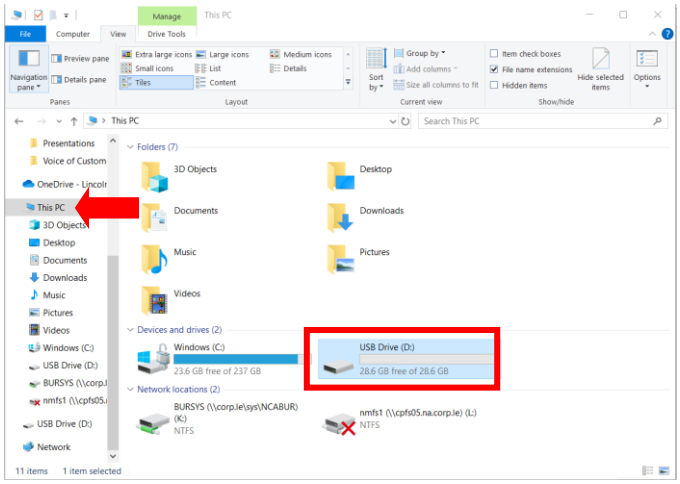
Ensure that the following prerequisites have been met before continuing with the update procedure. Note that the entire update process will take approximately 3 hours.

1. The robot must have previously been set up with standard IO configuration to support the welder and payload data for the torch.
2. The robot must have options R796 (Ascii Program Loader) and R632 (KAREL) authorized and installed. R877 (Thick Plate Weld Pkg) is required if Thru-Arc Seam Tracking or Multi-pass welding will be licensed.
3. Three USB sticks will be required for this process. Recommended USB is SanDisk 8GB Cruzer Blade. Note it will be helpful for the subsequent processes to label the USBs 1 through 3 for clarity.
4. For systems with a Power Ream Plus reamer, please contact service at *cobot_support@lincolnelectric.com* or by phone at *1-888-935-3878 extension 3* to receive an updated license and steps to install.

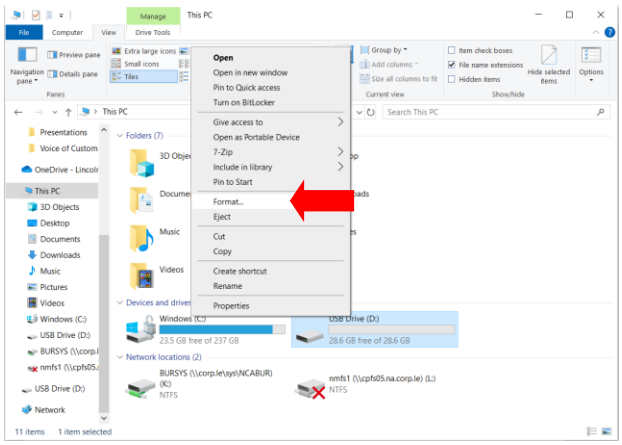
Section 2: Download Software from Cobot Resource Center

2.1: Format USBs

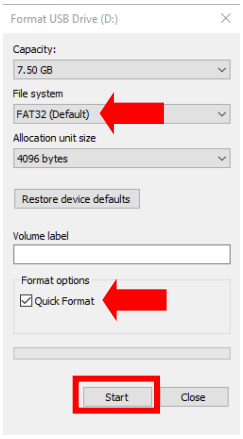
Insert the first USB into your computer (*USB 1*). Open the File Explorer, select This PC from the left side menu then right click on the USB Drive. Note that the reformatting process will erase any data currently on the USB so ensure any needed files are saved prior to formatting.



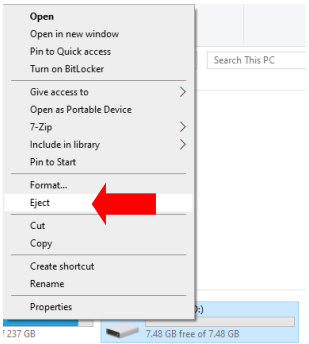
From the menu, select Format.



To Format the USB, ensure File System is set to FAT32 and under Format Options, make sure Quick Format is selected. Next, click Start > OK > OK.



Once formatting is complete, close the popup. Right click again on the USB and select Eject then remove USB stick from computer.

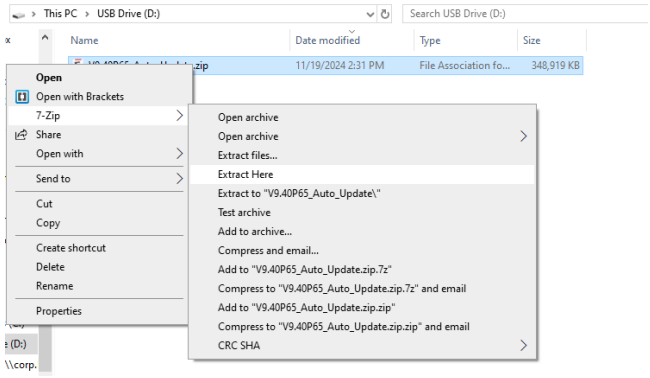


Repeat Section 2.1 for each of *USB 2* and *USB 3*.

2.2: Download FANUC Controller Software

Note this process will take approximately 45 minutes – 1 hour to complete. Navigate to Lincoln Electric's Cobot Resource Center: Cooper Welding Cobot Resources | Lincoln Electric. Scroll down to the section titled *Cooper Welding Cobot Software* and select the download for the Approved FANUC Robot Controller Software Update for Cooper CRX Cobots (**V9.40P71_Auto_Update**). Note the Fanuc Tablet software update is now included in the Auto Update.

Insert *USB 2* into your computer and copy the downloaded zip file to the USB. Once copied, if not already, navigate to This PC / USB drive and right click on the copied zip file. Extract all files to the USB.



Once extracted, right click on the USB and select Eject. Remove USB stick from computer.

2.3: Download Cooper App Software

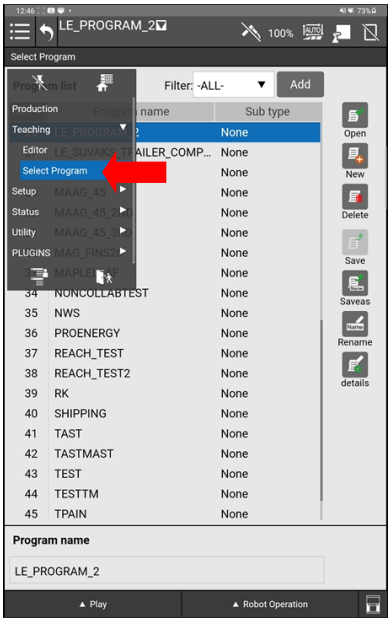
Note this process will take approximately 5 minutes. Navigate to Lincoln Electric's Cobot Resource Center: Cooper Welding Cobot Resources | Lincoln Electric. Scroll down to the section titled *Cooper Welding Cobot Software* and select the download for the Cooper App Software Update for Cooper CRX Cobots (Version 1.7). Right click on the downloaded zip file and extract the file.

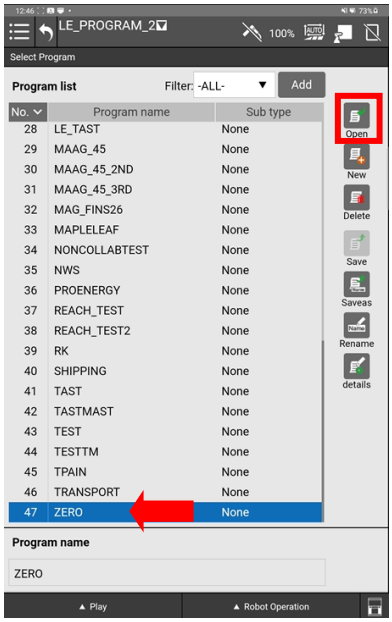
Insert *USB 3* into your computer. Copy the extracted file Cooper_App.ipl to the USB.

Once copied, right click on the USB and select Eject. Remove USB stick from computer.

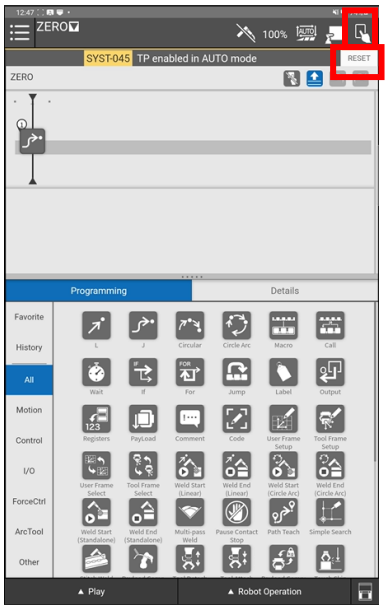
2.4: Image Backup of Current System

Note this process will take approximately 40 minutes. From the FANUC reduced version of the dropdown menu on the left side, navigate to Teaching / Select Program. Scroll down to find the program titled 'ZERO'. Select this program then click Open.





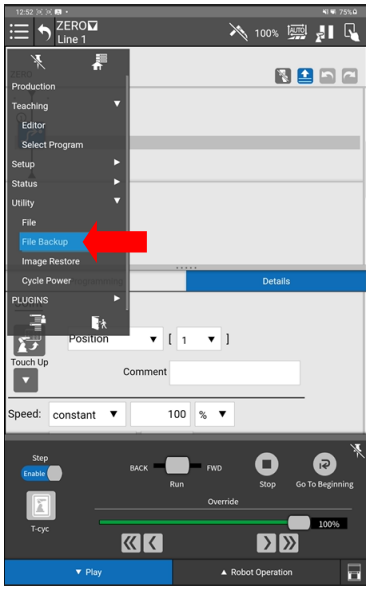
In the top right corner, ensure the Teach Pendant is enabled. Click RESET to acknowledge the alarms.

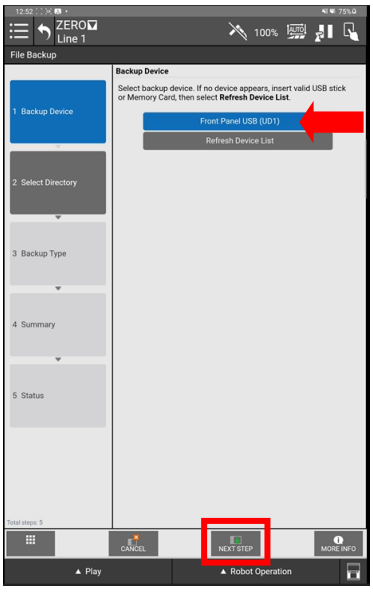


Select the Play tab in the bottom left of the screen. Hold the slider to FWD until the cobot moves to the Zero position. Once the cobot has stopped moving, ensure that the arrows on all six of the axis are pointing at each other as follows:

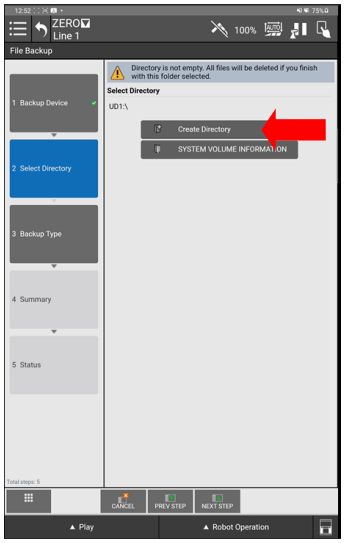
Insert *USB 1* into the robot controller.

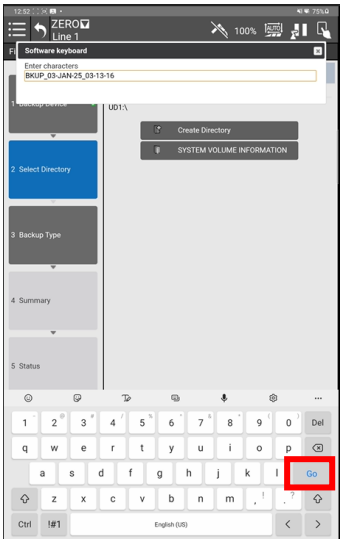
From the reduced version of the FANUC dropdown menu, navigate to Utility / File Backup. Click Front Panel USB (UD1) then select NEXT STEP at the bottom of the screen.

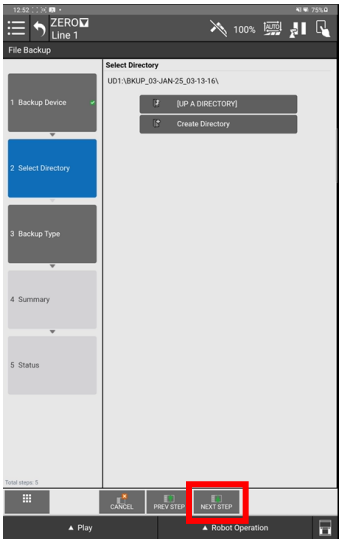




Select Create Directory and rename the directory to the F# of the cobot and the date of the cobot backup For example: F123456 – 01/02/2025. Click Go then select NEXT STEP at the bottom of the screen.

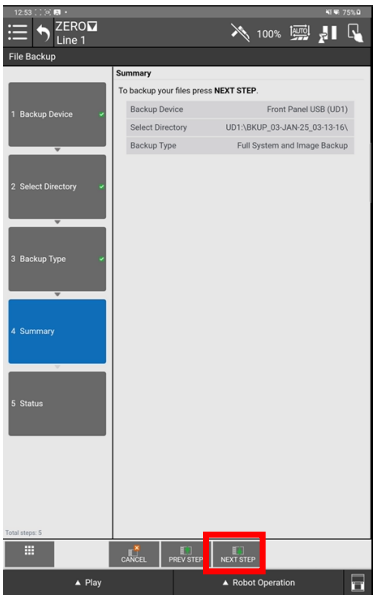


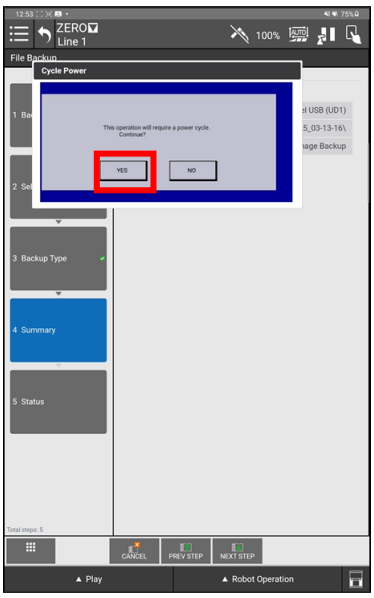




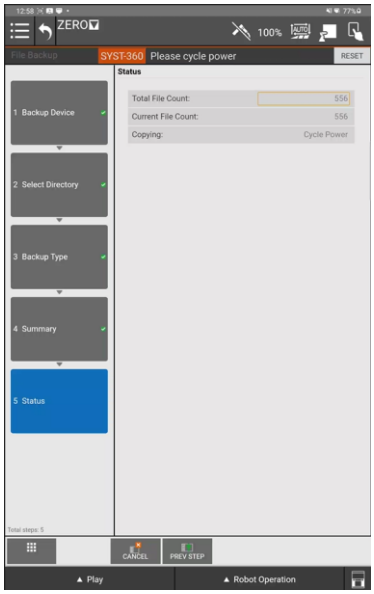
Select Full System and Image Backup then NEXT STEP at the bottom of the screen.

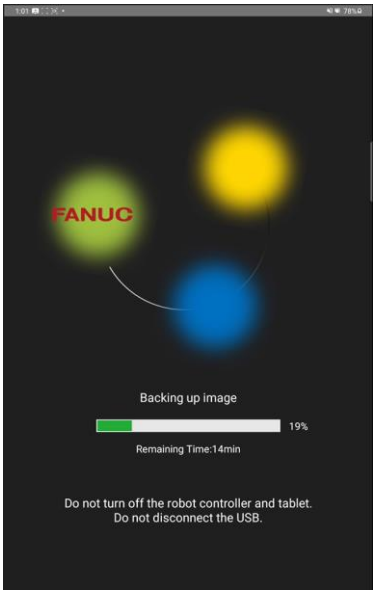
Select NEXT STEP at the bottom of the final screen and select YES on the popup asking to cycle power. Upon clicking yes, the system backup will begin automatically.





Once completed, you will be prompted to cycle power on the controller to being the image backup. Turn the power off on the controller, wait 10 seconds then turn it back on. The progress bar will show the time remaining in the backup. Once completed, remove the USB from the controller.

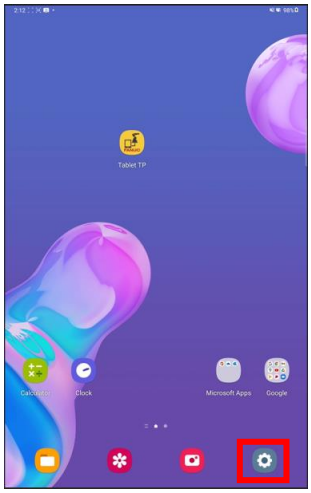




Section 3: Updating FANUC Controller Software

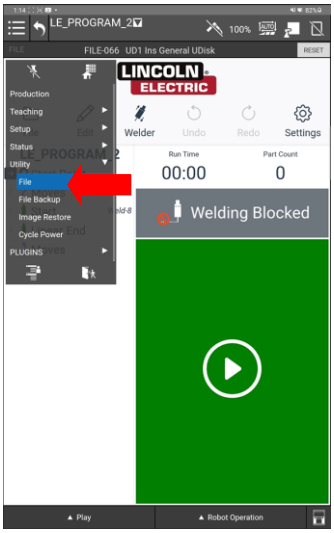
3.1: Update Controller Software

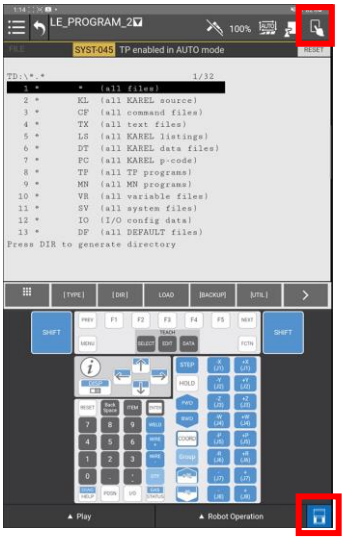
Click the center physical button on the left side of the tablet to minimize the TP App. Open the Settings App for the Samsung Galaxy Tablet. Using the search function, search for “Install unknown apps”. Select the Tablet TP app and ensure “Allow from this source” is toggled to be on.



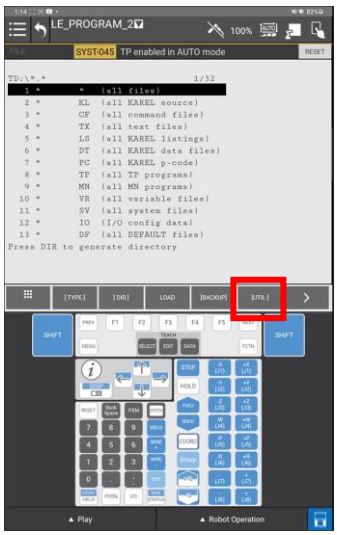
Note: If there is no option to “install from unknown app” or the Tablet TP app is not listed as an app with this option, the Tablet TP software update will need to be downloaded from the Cobot Resource Center and installed at the end of Section 3.

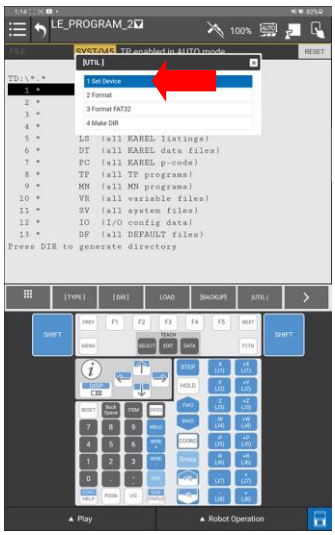
Insert *USB 2* into the robot controller. In the reduced version of the FANUC dropdown menu, navigate Utility / File. Open the legacy pendant from the bottom right of the screen and ensure the TP is enabled.

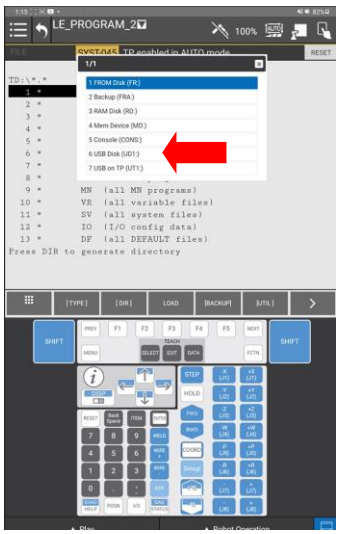




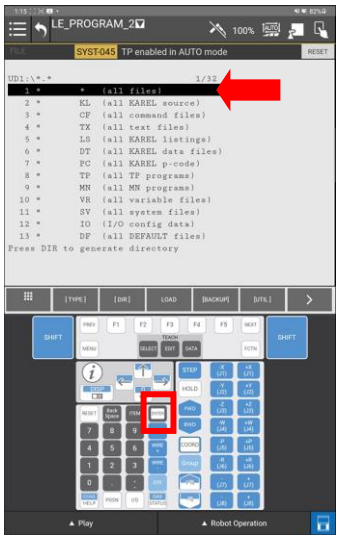
Click [UTIL]. Select option 1. Set Device then select option 6. USB Disk (UD:1).



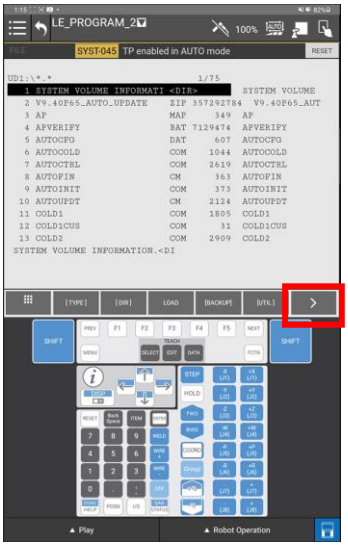


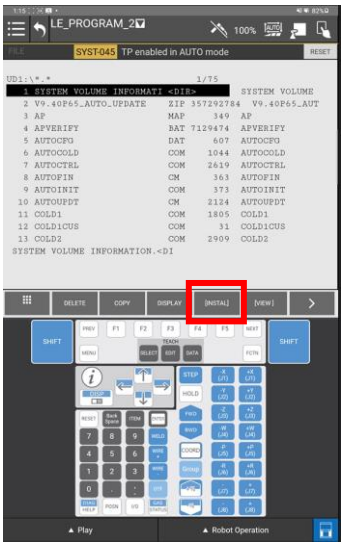


Select row 1 * * (all files) and click Enter on the keypad.

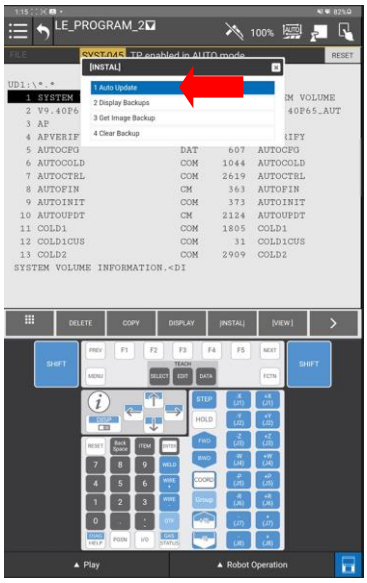


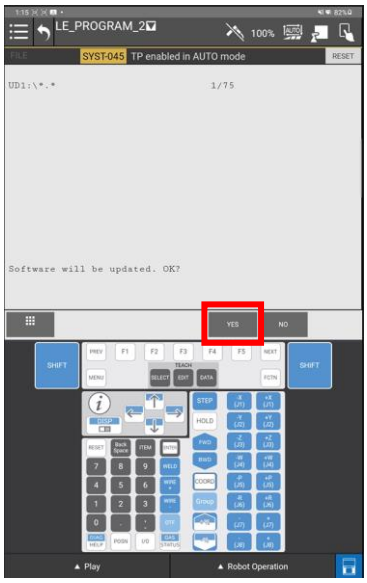
From the bottom menu, click the right arrow (>) then select [INSTAL].



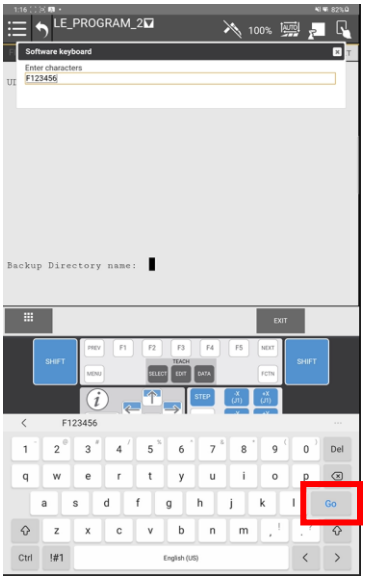


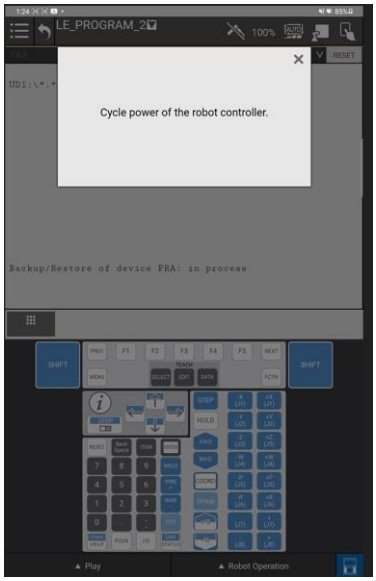
Select option 1 Auto Update then click YES when it asks for the software to be updated.





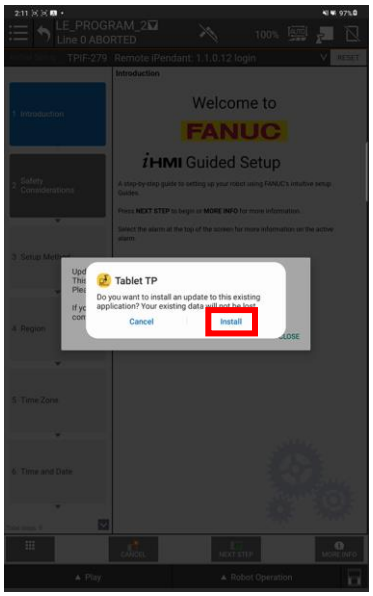
Name the folder with the F# of the cobot (i.e. F123456) and click Go. You will be prompted to restart the controller. Switch the controller off. Wait 10 seconds then turn the controller back on, this will begin the update process. **Warning: DO NOT POWER OFF controller while updating.**

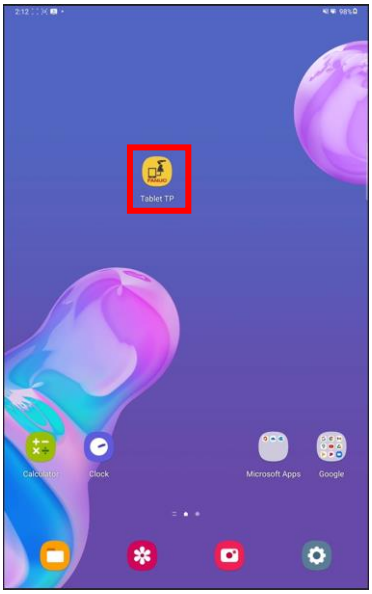




Once the controller update has completed, a popup will be presented to install the latest tablet software. Click UPDATE. This will automatically download the tablet software. Click Install to begin the tablet software update. Relaunch the app after it has been closed.

Note: If you were unable to set “install from unknown app” at the beginning of Section 3, here you will be prompted to insert the USB with the Tablet TP software into the tablet. Follow the guided prompts to install.





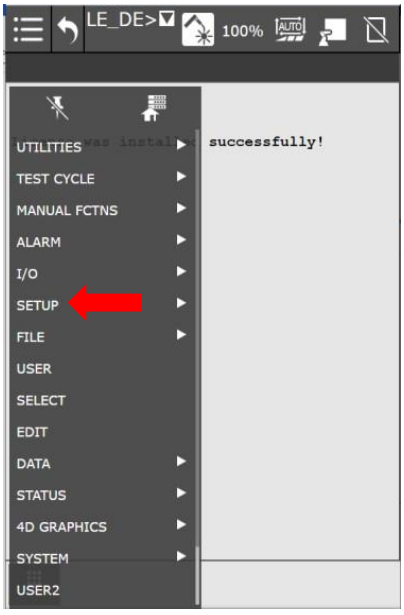
If not automatically prompted to confirm payload, click RESET to clear alarms and confirm payload. Remove *USB 2* from controller.

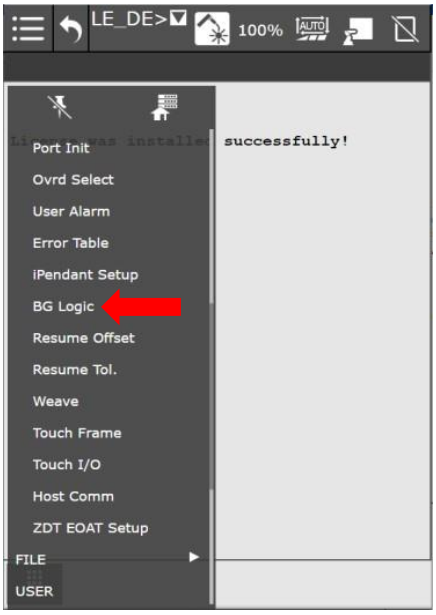
Section 4: Uninstalling Previous App Version

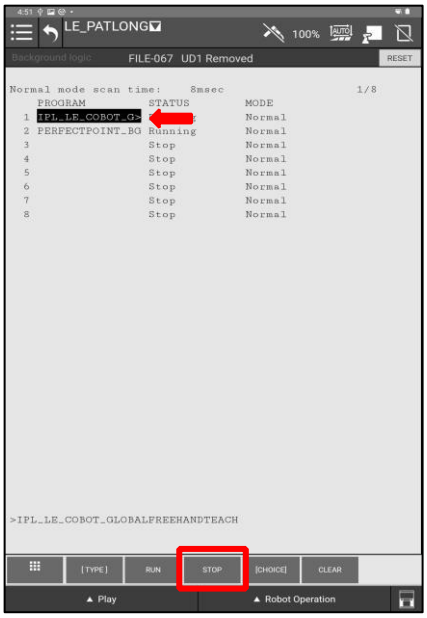
4.1: Cooper App Background Logic STOP

First step in the software update process is to STOP the Cooper App Background Logic to allow for an all-inclusive uninstallation of the older version of the Cooper App.

From the extended version of the FANUC left side dropdown, navigate to SETUP / BG Logic. From the BG Logic Screen, select each program with the prefix IPL_LE_COBOT to highlight it, and then press the STOP button. There should be NO programs with the prefix IPL_LE_COBOT running.

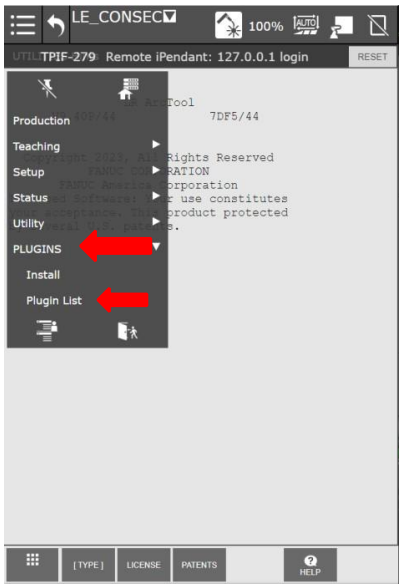




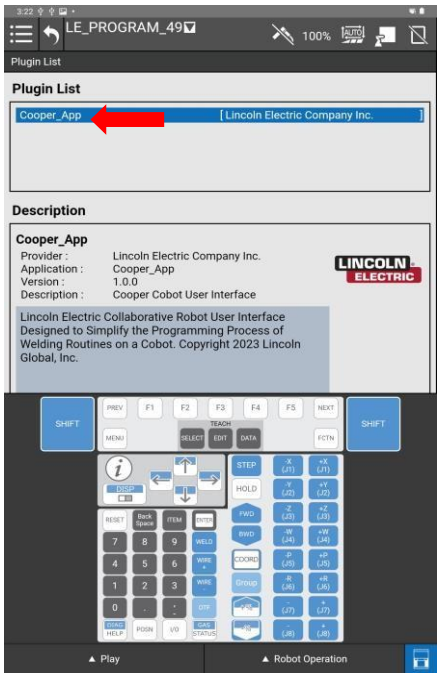


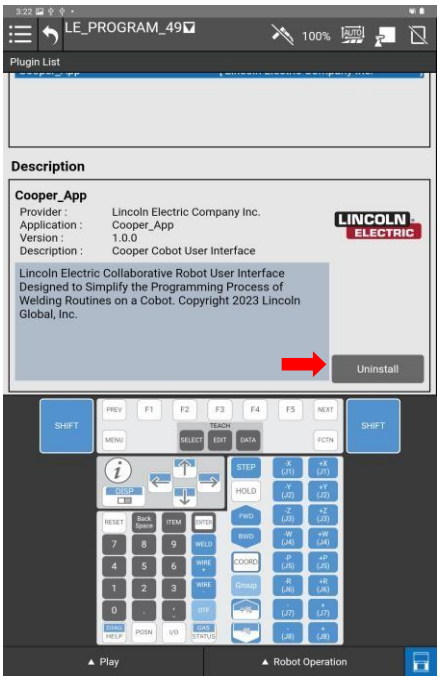
4.2: Cooper App Plug-In Uninstall

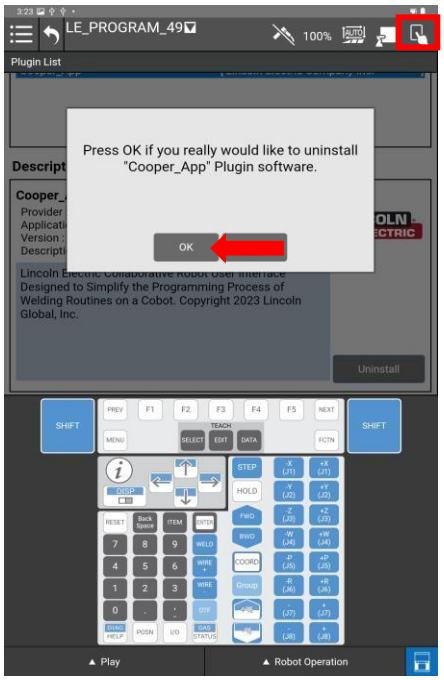
From the FANUC reduced version of the dropdown navigate to PLUGINS / Plugin List.



From the FANUC Plugin List ensure that Cooper_App is highlighted. Scroll down on the page until the Uninstall button is shown. Click on “Uninstall” and then OK on the pop-up to confirm the uninstallation of the Cooper App. Note, the teach pendant will need to be enabled. Cycle power on the controller once the app has successfully been uninstalled by manually switching the controller off then turning it back on.

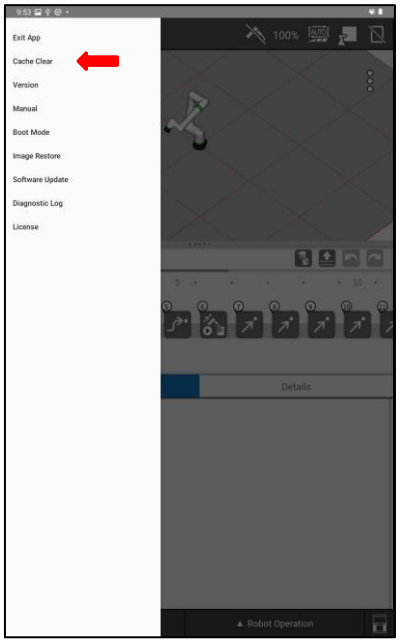


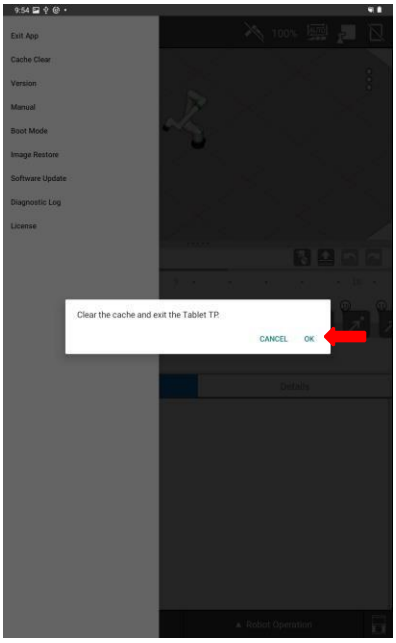


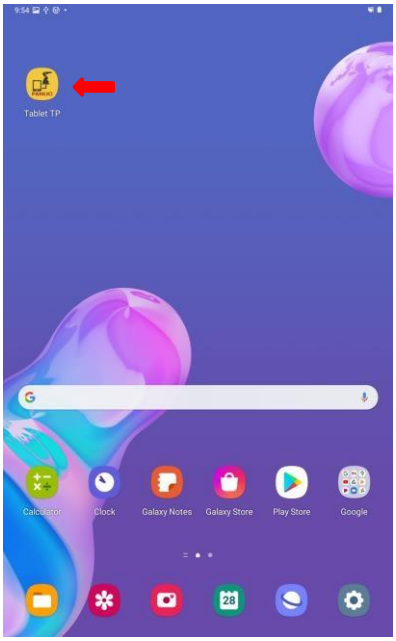


4.3: FANUC App – Cache Clear

From within the FANUC Timeline application swipe the screen from the left to the right to expose the Clear Cache option. Press the Cache Clear button and then OK. Once the cache is cleared, the FANUC Timeline application will close and you will be required to restart the FANUC Application.



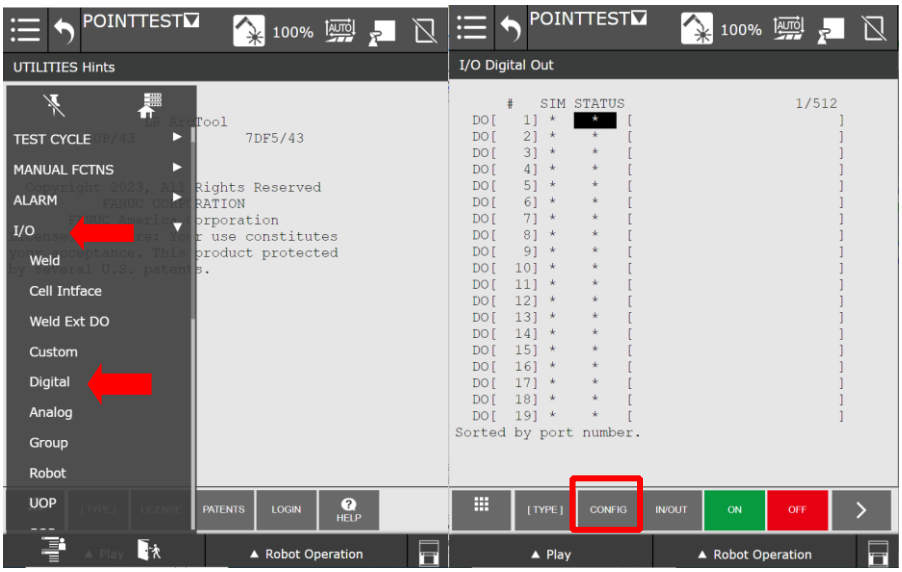




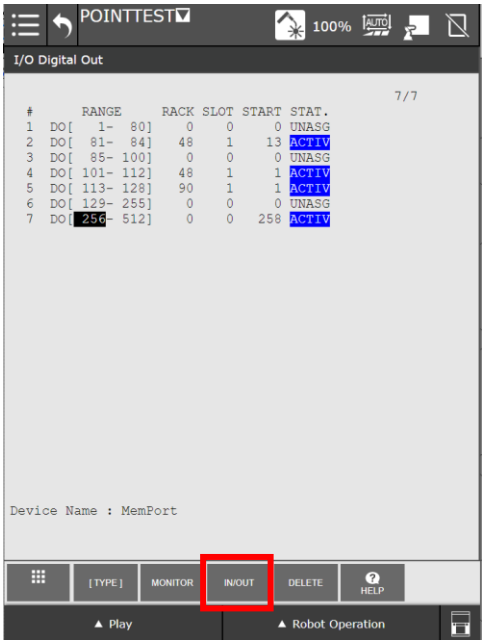
Section 5: IO Setup

5.1: Confirm Virtual IO

From the expanded version of the FANUC dropdown menu, navigate to IO / Digital. Select CONFIG.

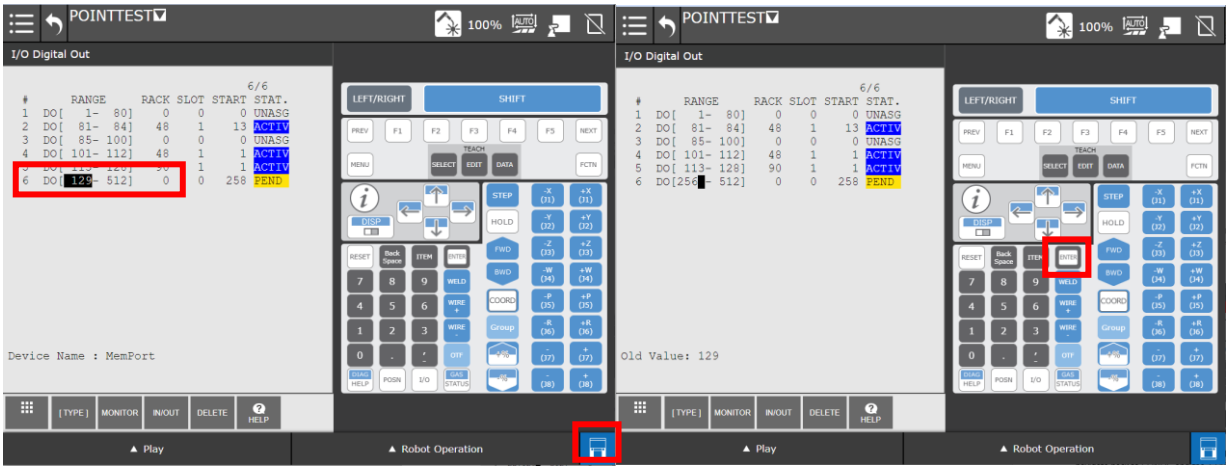


Confirm that the last range of DO's (DO[256-512]) is set as below. If set correctly, click IN/OUT then CONFIG and confirm the same range is also set correctly for the DI's. If both DI and DO are configured correctly, continue on to Section 6: Cooper App Install & Configuration.

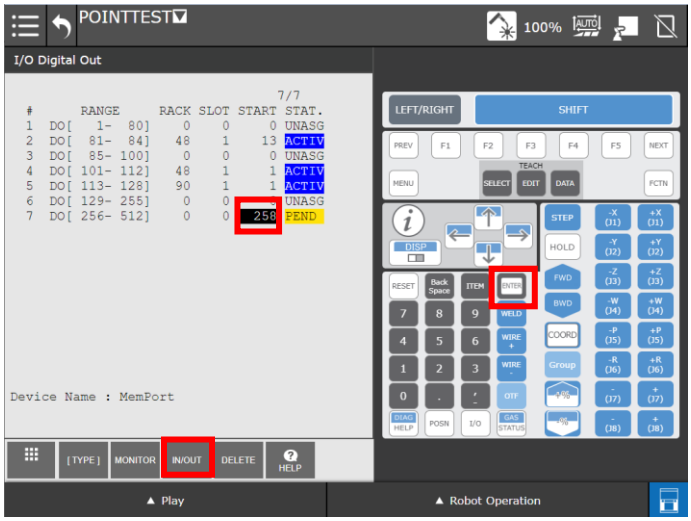


5.2: Configure Virtual IO

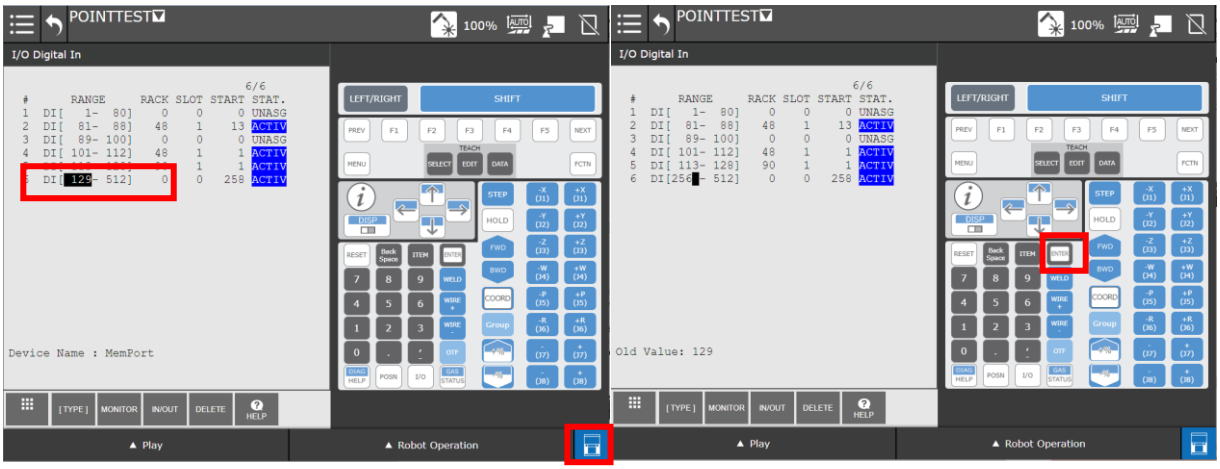
Select the last range of DO's and if not already, set the range from 256 – 512. To set the range, select the first number of the last range. Open the legacy TP and verify you are still on the same screen. If needed navigate back to CONFIG. Using the number keys enter the value to be 256 and press ENTER. The last range should now read [256 – 512].



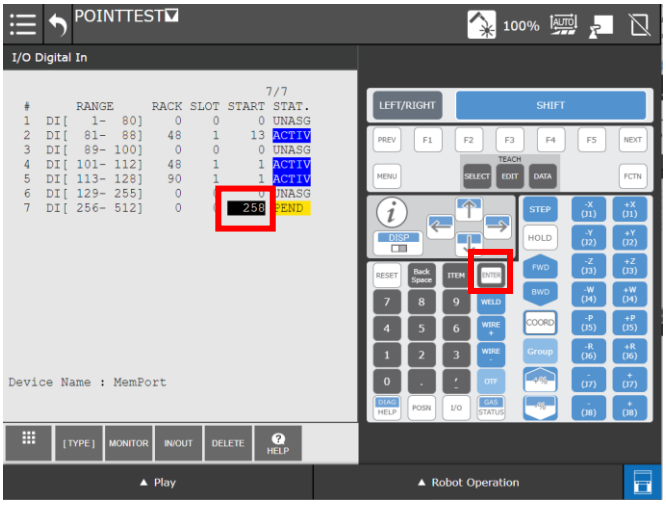
Select the ‘START’ value. Using the number keys on the legacy TP set the value to 258 and press ENTER. Select IN/OUT to switch over to the DI’s.



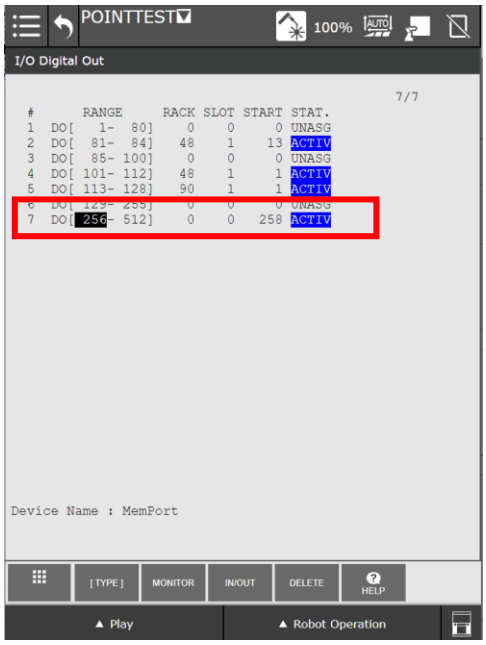
Select the last range of DI’s and if not already, set the range from 256 – 512. To set the range, select the first number of the last range. Open the legacy TP and verify you are still on the same screen. If needed navigate back to CONFIG. Using the number keys enter the value to be 256 and press ENTER. The last range should now read [256 – 512].



Select the ‘START’. Using the number keys on the legacy TP set the value to 258 and press ENTER. Cycle power on the controller to apply the changes.



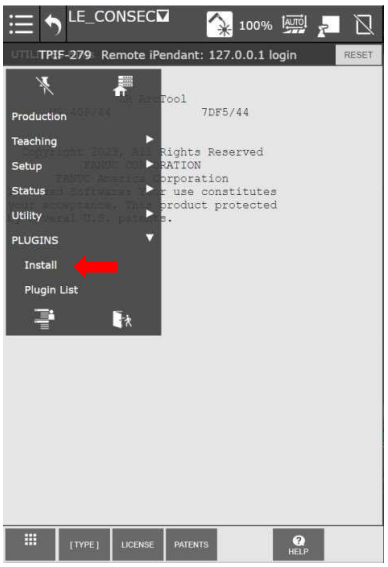
Once the controller has restarted, navigate back to IO / Digital. Select CONFIG and verify that the changes have been applied. The STAT. of DO & DI [256 – 512] should now be set to ACTIVE.



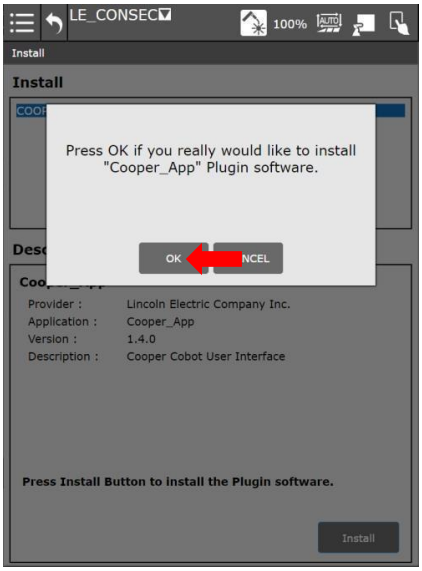
Section 6: Cooper App Install & Configuration

6.1: Cooper App Plug-In Install

Insert *USB 3* with the file Cooper_App.ipl in it. The Cooper_App.ipl should be at the root level and not located within a folder. It should be named exactly *'Cooper_App.ipl'*. If multiple copies of the app have been downloaded i.e. Cooper_App(1).ipl, please rename the file and ensure there are NO spaces in the name. From the FANUC reduced version of the dropdown, navigate to PLUGINS / Install.



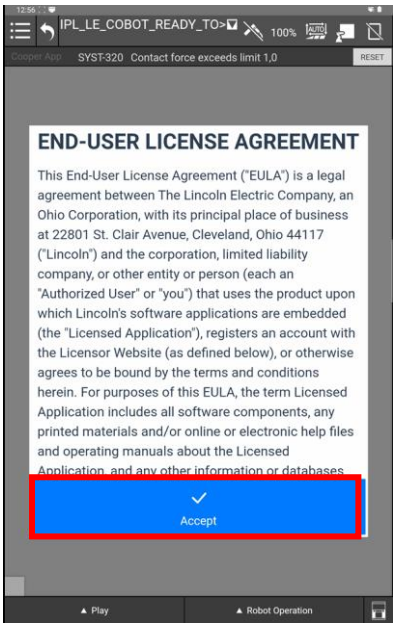
Verify that the version of the software to be installed is correct by referencing the Description -> Version. Once confirmed press Install -> OK buttons and wait for the install to complete. Note, the teach pendant will need to be enabled. The installation process will take a few minutes (5 – 10). The message "Plugin software successfully installed!" will be shown if successful. Cycle power on the controller by manually switching the controller off then turning it back on.



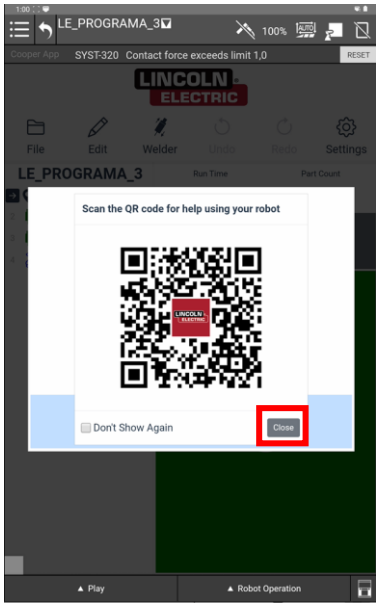
6.2: Cooper App Setup & Preferences

Following power cycle, the Cooper App will automatically be launched on restart. First, select the language you would like the app to be displayed in.

Once select, you will be presented with the End-User License Agreement. Please read the terms outlined and click Accept.



Once accepted, you will be presented with a QR code that when scanned will redirect you to tutorial videos, manuals, and other resources for your Cooper Cobot system. Click Close to continue.



6.3: Migrate Existing Weld Data

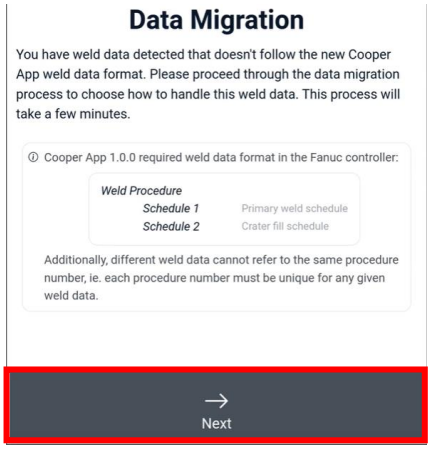
If you have existing custom welds saved in the Cooper App that do not follow the updated Cooper App format:

Weld Procedure #:

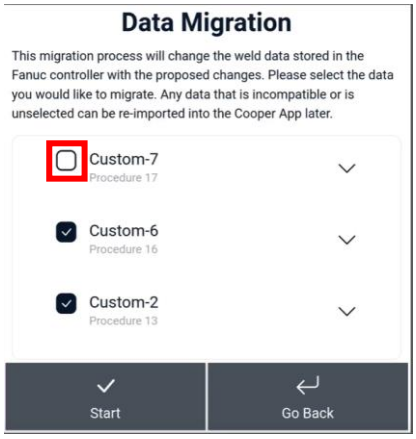
Schedule 1: Main Bead/Weld Parameters

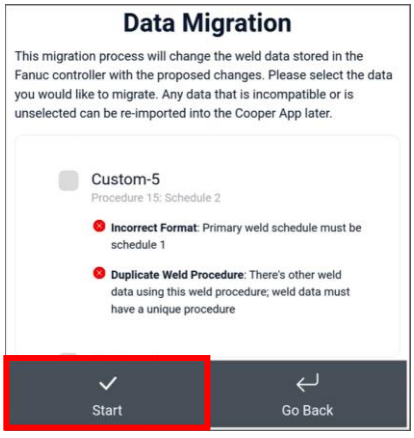
Schedule 2: Crater Fill Parameters

You be prompted with the following notification and will be guided through steps to resave these welds in the app.

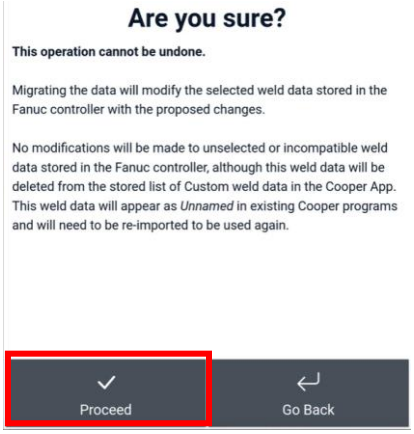


Clicking next will list out all the existing custom weld data currently saved to the Cooper App. Check off the custom weld schedules you would like to migrate. Note: some weld data may be incompatible to migrate at this stage. If data is incompatible, an explanation will be provided as to why this custom weld cannot be resaved at this step. Any incompatible data in NOT deleted from the Fanuc Controller and can be re-imported directly to the Cooper App following setup. Once selections are made, click Start.

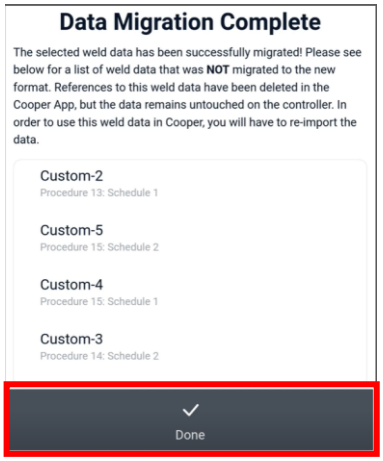




A prompt will ask you to confirm if you are sure of the adjustments made to your custom welds before proceeding. It also mentions that any weld data not able to be migrated will show up as “Unnamed” in the Cooper App program which used it. These welds will need to be re-imported to the app and reset in their respective programs. Click Proceed to begin the migration process.

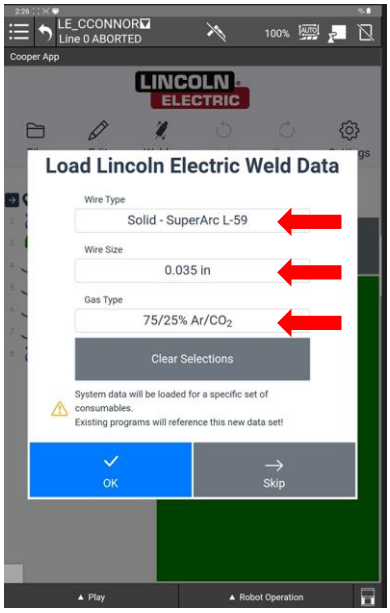


Once the migration has been completed. A list of the remaining un-migrated data will be displayed. These custom welds still exist on the Fanuc controller and will need to be re-imported within the app and updated on their respective programs. Click Done.

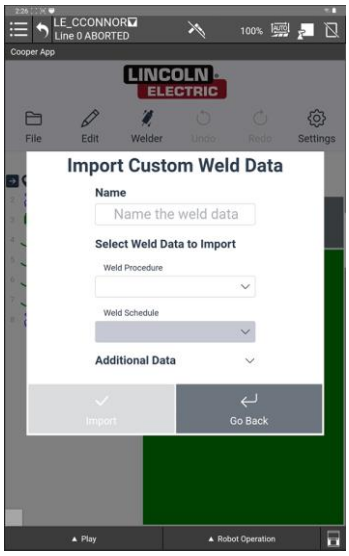


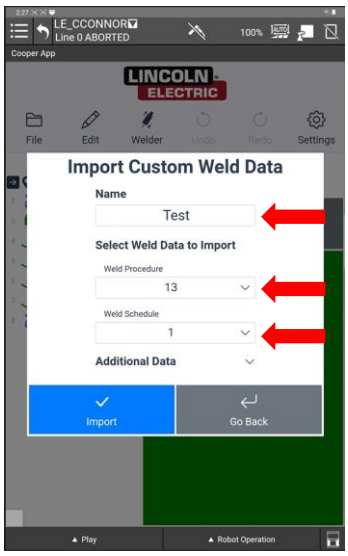
6.4: Initialize Weld Data

Finally, you will be prompted to reselect your consumables. Select the appropriate Wire Type, Wire Size, and Gas Type present on your system. This will load in improved Weld By Number parameters for your respective consumables. If you are not using Weld By Numbers or the consumables you are using on your system are not listed in the dropdown selections, you can instead select Skip to reimport your custom weld data. Once consumables have been selected, press OK to load in the weld-by-number weld database. This process will take approximately 3 minutes to complete.

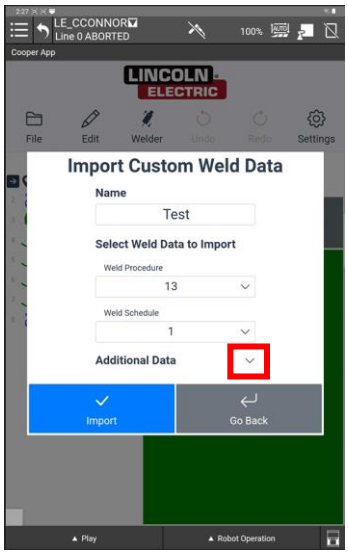


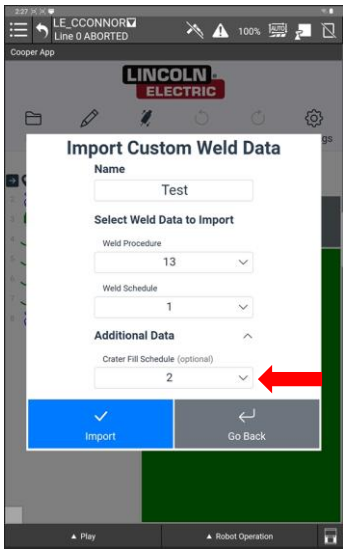
If you opted to skip loading Lincoln Electric's Weld By Number parameters or if you have additional custom Weld Procedures available on the cobot, you will be presented with the option to import Custom Weld Data into the Cooper App. Here you will be prompted to name the custom weld data and select which procedure and schedule to import.



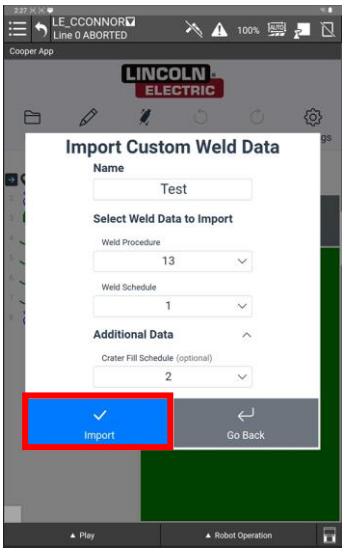


If you would like to set a crater fill on your weld, drop down the arrow for Additional Data and select the corresponding schedule from the weld procedure you are importing which has your crater fill parameters.





Once you have made all your desired selections, click Import.



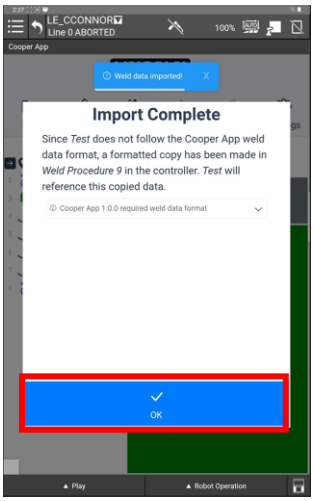
If the weld procedure being imported is not already in the format required for the Cooper App, the weld data will be copied to a new weld procedure number upon import. The Cooper App weld data format has been updated to support crater fill and is now as follows:

Weld Procedure #:

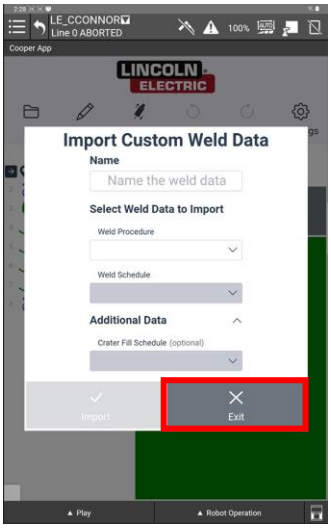
Schedule 1: Main Bead/Weld Parameters

Schedule 2: Crater Fill Parameters

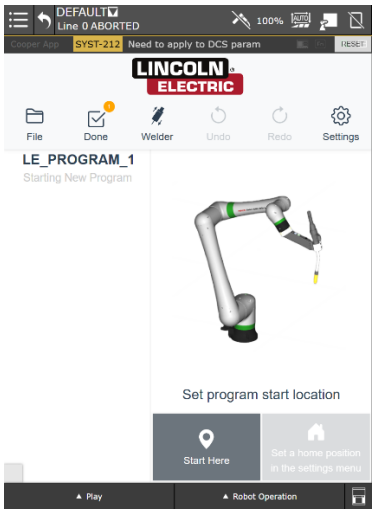
Note: if no crater fill is set, schedule 2 will hold the same weld parameters as schedule 1. Click OK to acknowledge the popup indicating which weld procedure number your data was copied to upon import.



You will be brought back to the import custom weld modal. If there are additional welds you wish to import, you can repeat the above process to import. If you are finished importing custom welds, click Exit.

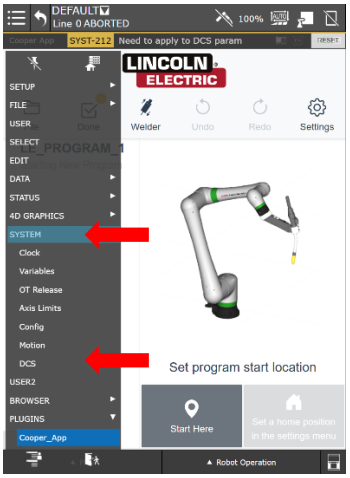


You have now successfully updated the Cooper App!

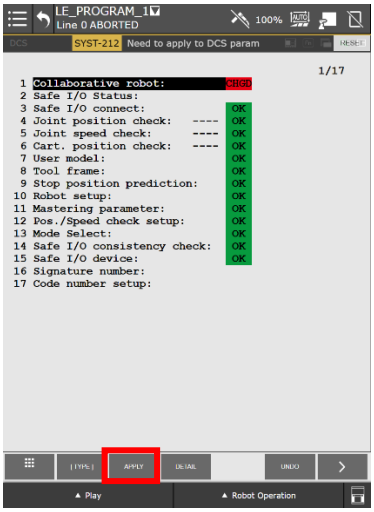


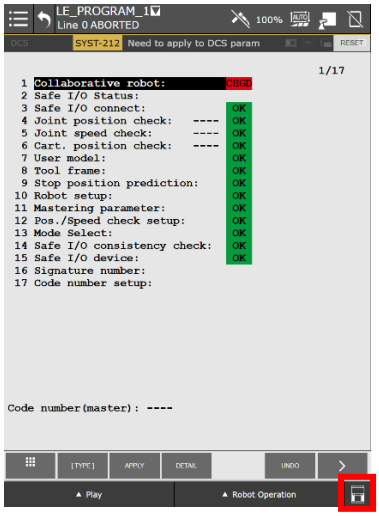
6.5: Apply DCS Parameters

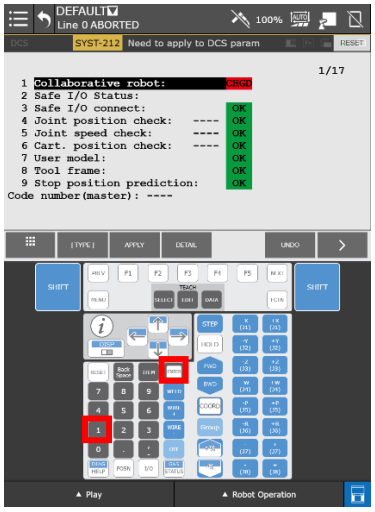
Now that the app has been updated, you will need to apply the revised DCS parameters. In the expanded version of the left-side menu, navigate to SYSTEM / DCS.



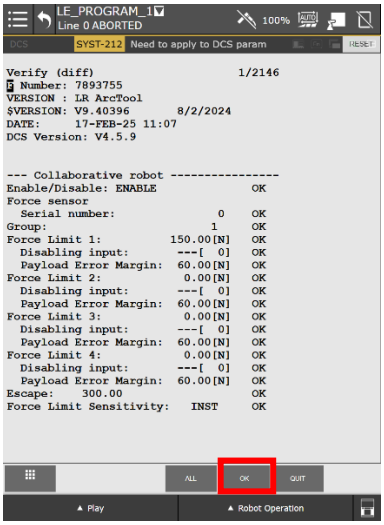
From the bottom ribbon of the DCS menu click [APPLY]. You will be prompted to enter a code, open the legacy TP and enter “1111” on the keypad then click ENTER.

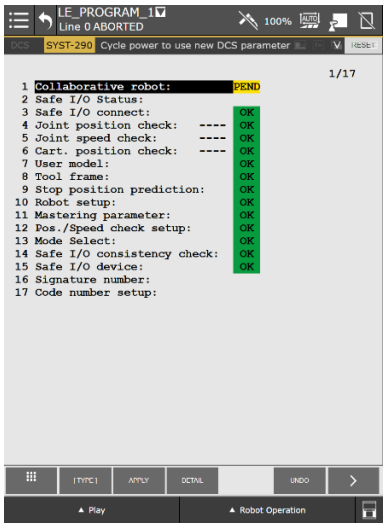






Click OK then you will be prompted to cycle power on the controller.

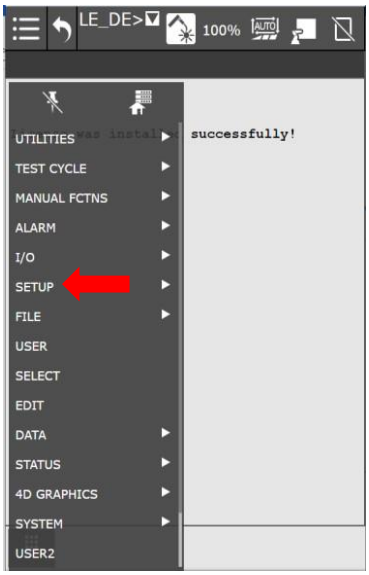


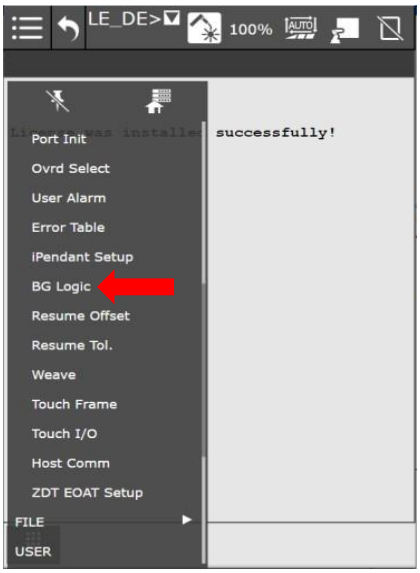


Section 7: Enable BG Logic (Wirebreak Torches only)

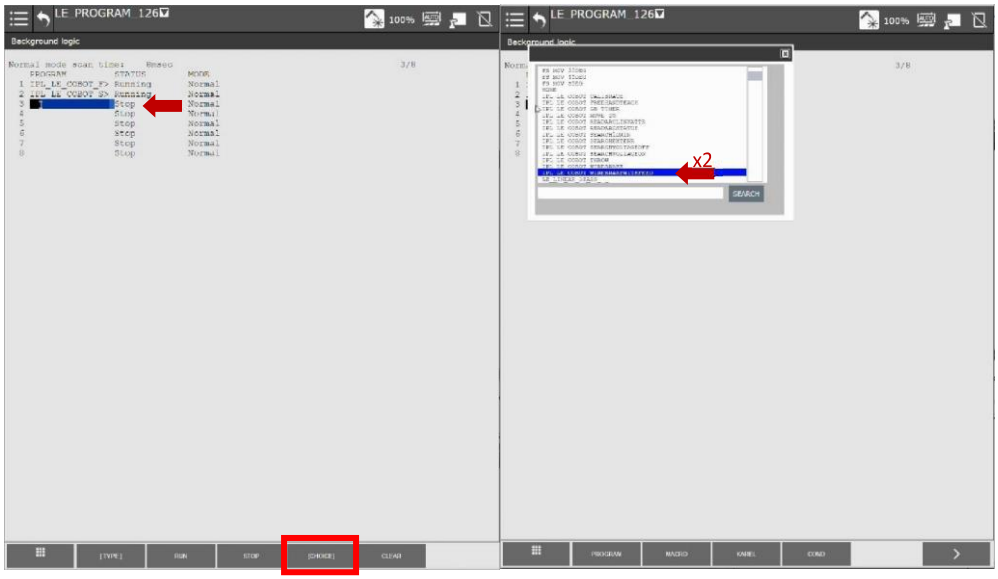
7.1: Re-enable Wirebreak BG Logic

From the expanded version of the FANUC left-side menu, navigate to SETUP / BG Logic.

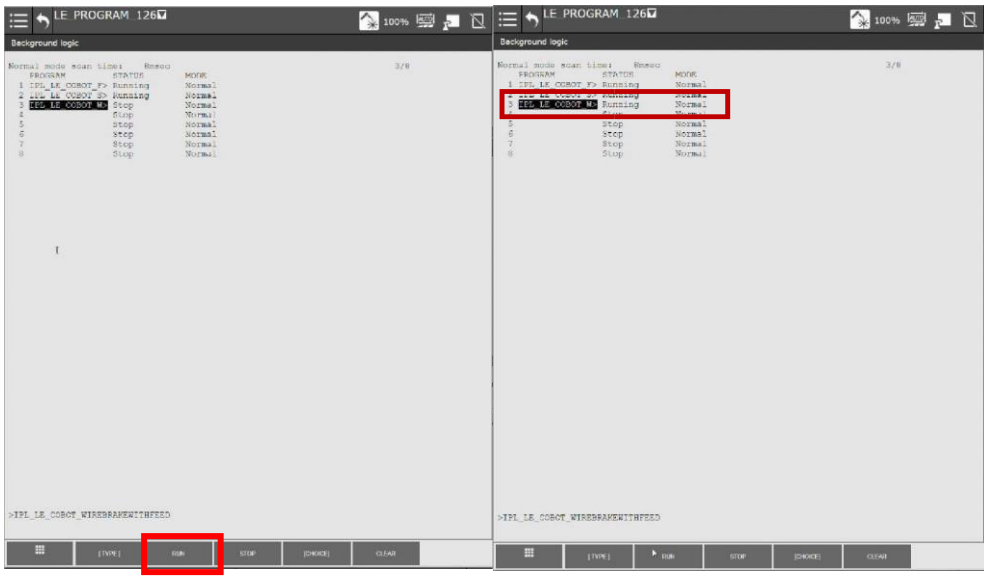




From the BG Logic screen, there should already be two programs starting “IPL_LE_COBOT” that are set to “Running”. To utilize the wire break torch functionality, a third program will need to be enabled. Select the next available BG Logic slot and press [CHOICE]. Select the program “IPL_LE_COBOT_WIREBREAKWITHFEED” by double clicking if the wire break torch has a button to feed wire located on the torch, otherwise select “IPL_LE_COBOT_WIREBREAK” by double clicking.



Press RUN to start the program. All three programs should now have STATUS set to “Running”.



You can now navigate back to the Cooper App from the left-side menu under PLUGINS / Cooper App and the app is ready to use!